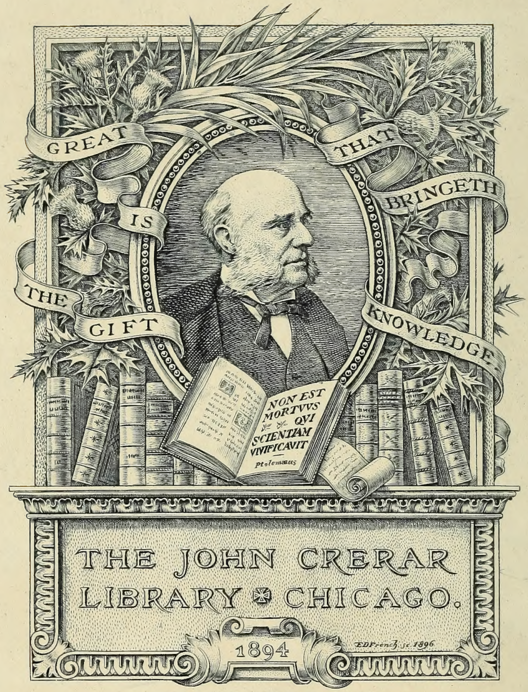
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VOL. I. No. IV.

THE GEORGIA SCHOOL OF TECHNOLOGY

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CHICAGO

MECHANICAL ENGINEERING
ELECTRICAL ENGINEERING
CIVIL ENGINEERING
TEXTILE ENGINEERING
ENGINEERING CHEMISTRY

1901-1902

PUBLISHED QUARTERLY
BY
THE GEORGIA SCHOOL OF TECHNOLOGY
OFFICE AT THE SCHOOL
ATLANTA, GEORGIA
APRIL, 1902

Entered at the Post-office at Atlanta, Ga., and admitted for transmission through the mails as Second-class Matter.

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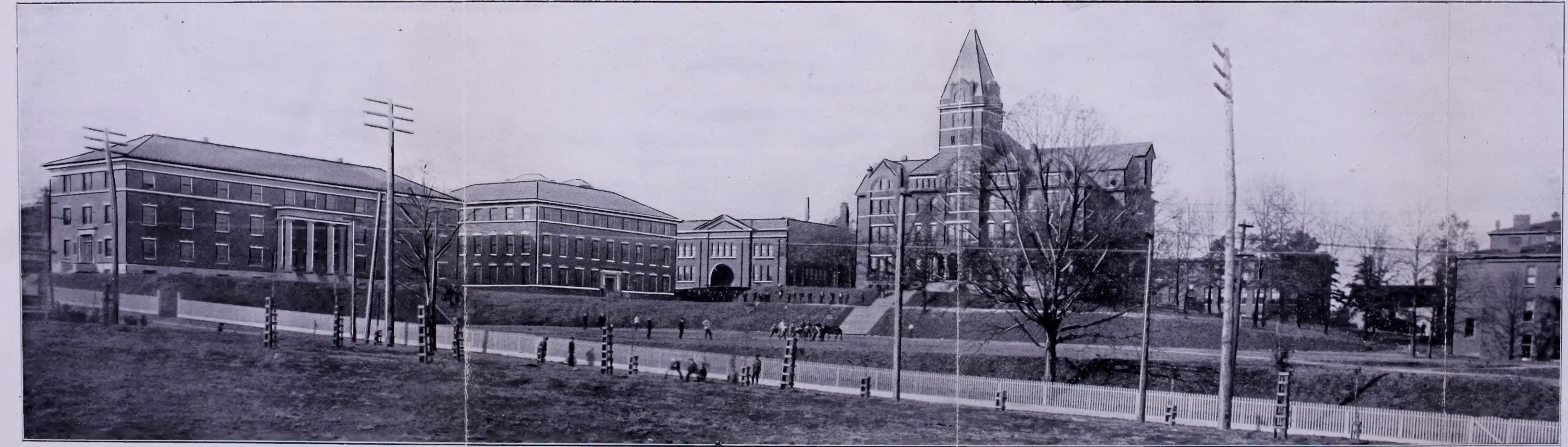

MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING, CIVIL ENGINEERING, TEXTILE ENGINEERING, ENGINEERING CHEMISTRY.

CAMPUS AND BUILDINGS, GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

ANNUAL ANNOUNCEMENT

OF THE

THE
JOHN CRERAR
LIBRARY

GEORGIA SCHOOL OF TECHNOLOGY

A SCHOOL OF MECHANICAL, ELECTRICAL, CIVIL AND TEXTILE ENGINEERING, AND ENGINEERING CHEMISTRY, A DEPARTMENT OF THE UNIVERSITY OF GEORGIA.

ATLANTA, GA.

ORGANIZED 1888.

1901-1902.

ATLANTA, GA.
THE FRANKLIN PRINTING AND PUBLISHING CO.
1902.

TABULAR ALMANAC.

1901

JULY

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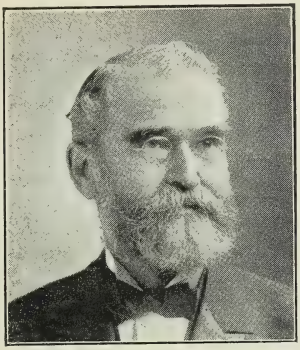

MR. AARON FRENCH,
DIED MARCH 22, 1902.

GEORGIA SCHOOL OF TECHNOLOGY,

ATLANTA, MARCH 27th, 1902.

Whereas, After a long, useful and highly honorable life AARON FRENCH, in the Providence of God, has been called from the scene of his earthly labors, and

Whereas, By his life Mr. French exemplified a standard of character and attainment inspiring to young manhood along right lines, and

Whereas, in his death the Georgia School of Technology especially has sustained an irreparable loss; therefore, be it

Resolved, By the students of the above institution, in convention assembled, that we pay this heartfelt tribute of respect and gratitude to the memory of Mr. French.

Resolved, That we acknowledge in deepest appreciation his beneficence, by which the highest development of this school was made possible, and which has made us its lasting debtors.

Resolved, That we tender our sincerest simpathy to his family in this the hour of their affliction.

Resolved, That a copy of these resolutions be sent to the family of Mr. French, and that Pittsburg and Atlanta papers be asked to publish the same.

GEORGIA SCHOOL OF TECHNOLOGY,

ATLANTA, MARCH 28th, 1902.

Whereas, We, the faculty of the Georgia School of Technology have learned with profound regret of the recent death of Aaron French, and

Whereas, In the visitation of Providence we feel a sense of deep loss, both personal and as officers of the institution; therefore be it

Resolved, That in paying this tribute to the memory of Mr. French, we voice our high regard for his character as a man, and our admiration and gratitude for his services as a noble philanthropist.

Resolved, That we convey to his bereaved family our sincere sympathy in this affliction in which we likewise feel that we are sharers.

Resolved, That a copy of these resolutions be spread on the minutes of the school.

Resolved, That a copy of these resolutions be sent to the family of Mr. French, and that Pittsburg and Atlanta papers be furnished copies for publication.

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CALENDAR 1902–1903.

First Term.

Begins September 24, 1902; ends December 20, 1902.

(12 weeks.)

Second Term.

Begins December 29, 1902; ends March 21, 1903.

(12 weeks.)

Third Term.

Begins March 23, 1903; ends June 17, 1903.

(12 weeks.)

Commencement Day, Thursday, June 18, 1903.

By order of the Board of Trustees, the only holidays to be observed are Thanksgiving Day and Memorial Day (April 26th).

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E. R. HODGSON, Secretary,	Athens, Ga.
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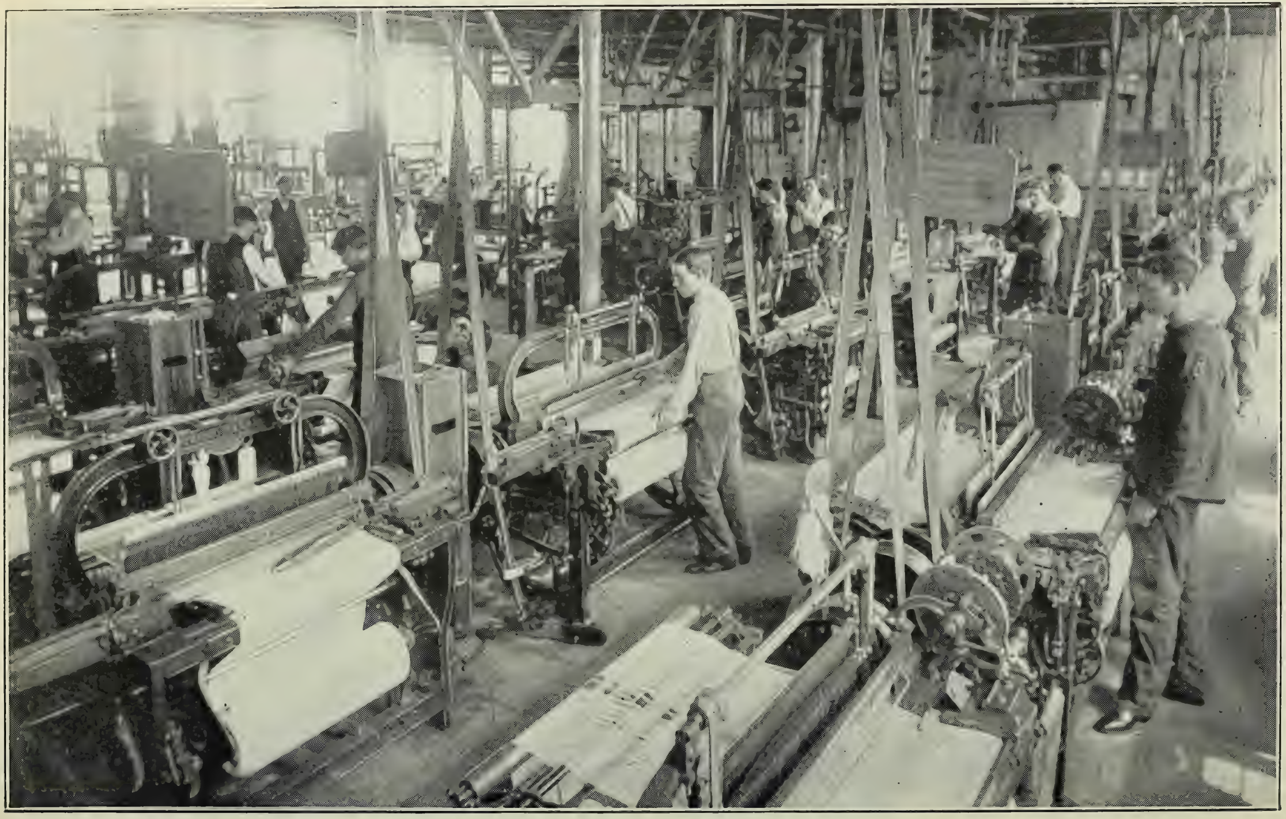

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FACULTY.

LYMAN HALL,
President, Professor of Mathematics.

WM. H. EMERSON, Ph.D.,
Professor of Chemistry and Engineering Chemistry.

J. S. COON, M.E.,
Superintendent of Shops, Professor of Mechanical Engineering and Drawing.

K. G. MATHESON, A.M.,
Professor of English Language and Literature.

ARTHUR H. FORD, E.E.,
Professor of Physics and Electrical Engineering.

T. P. BRANCH, B.E.,
Acting Professor of Civil Engineering, Junior Professor of Mathematics.

F. C. FURLOW, M.E.,
Junior Professor of Mechanical Engineering, in charge of Experimental Engineering Laboratory.

J. W. BAILEY,
Acting Director of the A. French Textile School, and in charge of the Carding and Spinning Department.

WILLIAM JENNINGS, B.S.,
Junior Professor of Mathematics.

FACULTY—Continued.

CHARLES K. FRANCIS, Ph.B.,

Junior Professor of Chemistry, and in charge of Dyeing and Textile Chemistry.

H. V. BLACK, A.B., Ph.D.,

Junior Professor of Chemistry.

J. B. EDWARDS, E. and M.E.,

Adjunct Professor of Physics and Electrical Engineering.

S. S. WALLACE, A.M.,

Adjunct Professor of English.

W. H. FERGUSON, A.B.,

In Charge of Sub-Apprentice Class, Adjunct Professor in Mathematics.

A. B. MORTON, A.M.,

Instructor of Sub-Apprentice Class (Mathematics).

JOHN KNIVETON,

In charge of Weaving Department (Textiles).

W. A. JACKSON, Jr., M.D.,

Physician and Director of Physical Culture.

WILLIAM GILMER PERRY, A.M.,

Adjunct Professor of English.

F. C. TURNER, M.E.,

Adjunct Professor of Drawing.

FACULTY—Continued.

R. J. McCUEN,
Instructor in Weaving and Designing.

H. L. FREEMAN, E.E.,
Adjunct Professor of Drawing.

C. W. MOORMAN,
Instructor in Carding and Spinning.

A. S. MEAD, T.E.,
Instructor in Designing.

B. W. McDONALD,
Assistant Instructor in Carding and Spinning.

O. J. HUIE, A.B.,
Student Assistant in Chemical Laboratory.

MISS MADGE FLYNN,
Librarian.

FOREMEN AND INSTRUCTORS

In the Mechanical Department.

E. B. MARTINDALE,
Principal Foreman, Foreman of Machine-shop.

HORACE A. THOMPSON,
Foreman of Smith-shop.

T. O. JONES,
Foreman of Wood-shop.

WILLIAM VAN HOUTEN,
Foreman of Foundry.

H. H. NORMAN,
Instructor in Wood-shop.

W. F. GRIFFIN,
Instructor in Machine-shop.

H. S. PASCHAL,
Instructor in Wood-shop.

W. S. ADAMSON,
Instructor in Machine-shop.

THE A. FRENCH TEXTILE SCHOOL.

THE
JOHN CRERAR
LIBRARY

RESIDENCES OF FACULTY AND INSTRUCTORS.

Lyman Hall	376 Capitol Avenue.
William H. Emerson	175 Ashby Street.
J. S. Coon	25 Howard Street.
K. G. Matheson	Dormitory.
A. H. Ford	568 Spring Street,
T. P. Branch	80 E. Pine Street.
F. C. Furlow	449 Spring Street.
J. W. Bailey	385 West Peachtree Street.
William Jennings	384 Spring Street.
C. K. Francis	730 Peachtree Street.
H. V. Black	222 Washington Street.
J. B. Edwards	305 Houston Street.
S. S. Wallace	392 Spring Street.
W. H. Ferguson	Oakland City, P. O., Ft. McPherson.
A. B. Morton	401 Spring Street.
John Kniveton	70 Plum Street.
Dr. W. A. Jackson, Jr.	338 West Peachtree Street.
Wm. G. Perry	64 Forrest Avenue.
F. C. Turner	Dormitory.
R. J. McCuen	405 Spring Street.
H. L. Freeman	141 Spring Street.
C. W. Moorman	Dormitory.
A. S. Mead	Decatur, Ga.
B. W. McDonald	97 Spring Street.
O. J. Huie	Dormitory.
Miss Madge Flynn	202 Jackson Street.
E. B. Martindale	2½ Auburn Avenue.
Horace A. Thompson	10 Cherry Street.
T. O. Jones	430 Luckie Street.
William Van Houten	211 West Pine Street.
H. H. Norman	412 West Fourth Street.
W. F. Griffin	200 West Kimball Street.
H. S. Paschal	446 Luckie Street.
W. S. Adamson	148 Luckie Street.

STUDENTS.

(T.) Textile; (S. M.) Special Mechanical; (E. C.) Engineering Chemistry; (Ir.) Irregular. Students not thus designated are taking the regular courses in Mechanical, Electrical or Civil Engineering.

Senior Class (1901).

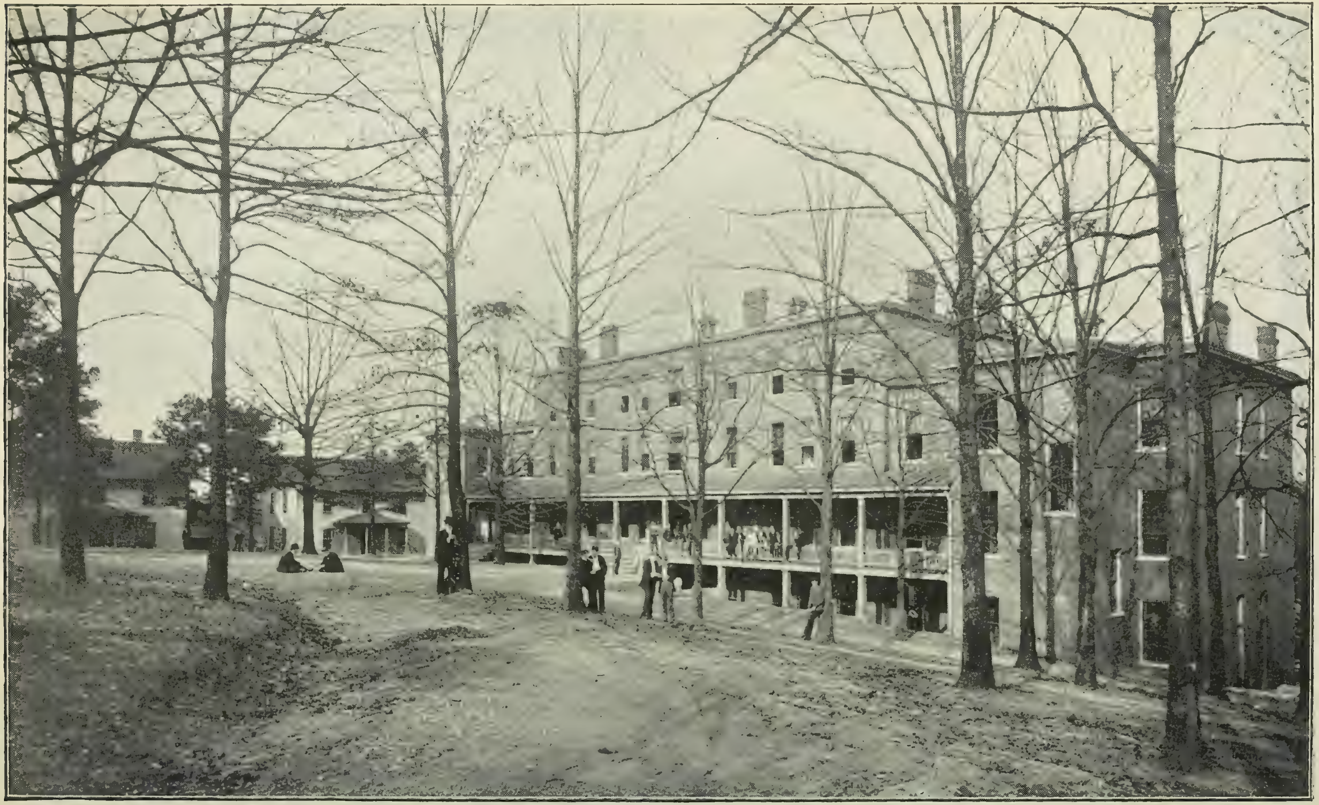
Benjamin, J. P	Fulton.
Camp, E. W. (T.)	Coweta.
Dougherty, E. O	Fulton.
Gay, E	Fulton.
Holman, W. J	Tennessee.
Holtzclaw, B. W	Houston.
Hughes, W. D. (T.)	Wilkinson.
Johnson, J. G. (T.)	Floyd.
Langston, W. (T.)	Fulton.
Mead, A. S. (T.)	DeKalb.
Merritt, G. J	Bibb.
Moore, J. W	Fulton.
Newsom, W	Troup.
Sullivan, W. P	Chatham.
Swords, L. C. (T.)	Morgan.
Towers, J. F	Floyd.
Waterman, J. S	Bibb.
Williams, J. W	Henry.

Senior Class (1902).

Anthony, J. T. (T.)	Chatham.
Bacon, E. H. (T.)	Dodge.
Berry, M. R	Fulton.
Hardeman, I. (T.)	Bibb.
Hicks, R. L	Bartow.
Hochstrasser, M. T	Fulton.
Johnson, F. (T.)	Bibb.
Jones, A. A. (T.)	Chattooga.
Kicklighter, C. H	Fulton.
Klein, E. W	Fulton.
Lawrence, McD	Cobb.
McKenney, P. K. (T.)	Lee.
Merry, R. G	Columbia.
Morton, A. H	Penn.
Norcross, P. H. (T.)	Fulton.
Paulsen, J. H	Chatham.
Prioleau, J. (T.)	Fulton.
Rainey, C. W. (T.)	Cobb.
Smith, M. G	Fulton.
Strickland, H. L	Gwinnett.
Thompson, T. M	Jasper.
Towers, D. D. (T.)	Cobb.
West, J. G., Jr. (T.)	Fulton.
Wey, H. B	Fulton.
Windsor, A	Carroll.
Yankey, L. G. (T.)	Dougherty.

Middle Class.

Atkinson, H. W. (T.)	Fulton.
Ball, H. O. (T.)	Butts.
Bell, F. G., Jr. (T.)	Chatham.
Cannon, P. E. (T.)	Franklin.
Cochran, B. W	Campbell.
Cook, J. C	Chattahoochee.



THE KNOWLES DORMITORY. DORMITORIES E AND F IN THE BACKGROUND.

THE
JOHN CRERAR
LIBRARY

Dayton, A. O	Florida.
Emery, A. R	Fulton.
Evans, H. O. (T.)	Texas.
Fambro, W. M	Thomas.
Freeman, M. L. (T.)	Richmond.
Furlow, F	Fulton.
Garrard, G. C. (T.)	Muscogee.
Haas, A. (T.)	Fulton.
Hall, W. E	Fulton.
Hamilton, G. W. (T.)	Whitfield.
Hodnett, J. D. (T.)	Richmond.
Howard, A. R. (T.)	DeKalb.
Huie, O. J	Fulton.
Huff, C. C	Fulton.
Kamper, C. J	Fulton.
Kennedy, A. D	S. C.
Kinnard, J. A	Coweta.
Lowndes, R. H	S. C.
Mallard, L. L	Fulton.
Markert, B. F	Pulaski.
Nelson, G. (Ir.)	Fulton.
Nussbaum, B. (T.)	Bibb.
Patterson, E. C	Fulton.
Peteet, P. M. (T.)	Morgan.
Rankin, W. S	Chatham.
Roberts, J. E. (E. C.)	Tennessee.
Seddon, E. A. J	Fulton.
Shackleford, F. W	Muscogee.
Snowden, S. L	Bibb.
Solomon, L. M. (T.)	Bibb.
Stannard, J. H. (Ir.)	N. C.
Swain, F. C. (T.)	Gordon.
Swanson, J. G. (T.)	Alabama.
Thompson, C. C	Fulton.
Thrash, J. L	Merriwether.
Van Wormer, R. B	Fulton.
Vaughan, J. H	Fulton.
Wagner, C. F	Butts.
Whitner, J. A	Fulton.
Wilson, A. C	Fulton.
Wilson, S. H. (E. C.)	Campbell.
Wright, Paul	Spalding.

Junior Class.

Acker, W. H	Fulton.
Albury, U. E	Florida.
Anderson, J. R	Florida.
Blackburn, B. M	Fulton.
Brandon, W. W	Thomas.
Camp, W. E	Coweta.
Campbell, R. L	Fulton.
Campbell, R. C. (T.)	Muscogee.
Chaplin, W. V	Chatham.
Conner, T. U	Bibb.
Davenport, F. B	Fulton.
Davis, W. M. (T.)	Bibb.
Dobbs, Z. T. (T.)	Fulton.
Edmondson, C. H. (T.)	Chattooga.
Ellis, C. D	Chatham.
Estes, J. W	Clayton.
Fleming, T. S. (E. C.)	Cobb.
Furlow, S. D. (T.)	Sumter.
Ginsberg, S. I. (T.)	Fulton.
Glenn, G. R. (E. C.)	Fulton.
Hall, J. A. (E. C.)	DeKalb.
Harbour, G. A. (T.)	Fulton
Harrison, Z. D. (E. C.)	Fulton.
Hartridge, A. L	Chatham.
Hawkins, J. W	Sumter.
Hilliard, C. M. (E. C.)	Hart.
Holbrook, W. P	Franklin.
Holtzclaw, R. C. (E. C.)	Houston.
Hunnicutt, L. L	Fulton.
Irwin. E. M	Pike.
Jones, C. A. (T.)	Cobb.
Jordan, R. K. (T.)	Jackson.
Lamar, T. B. (T.)	Stewart.
Lambert, T. A	Fulton.
Lucas, J. L	Harris.
Maddox, F. R. (E. C.)	Floyd.
Mathews, C. W. (T.)	Talbot.
Mathewson, S. B. (T.)	Richmond.
Mays, S. W	Fulton.
McCamy, C. C	Whitfield.
Mitchelson, A. T. (T.)	McIntosh.
Mitchell, R. A	Fulton.

Monsalvatge, A. T	Pike.
Moore, B	Clayton.
Moore, J. E. (T.)	Sumter.
Morton, F. C	Fulton.
Neely, F. H	Burke.
O'Keefe, J. E. (E. C.)	Fulton.
Peck, E. P	Fulton.
Pringle, D. R	Thomas.
Prior, G. S. (T.)	Fulton.
Redwine, L. S	Coweta.
Reid, I. H	Taliaferro.
Rivers, J. T	S. C.
Sanders, M. T. (T.)	Screven.
Scales, H. J	Fulton.
Shepherd, J	DeKalb.
Simmons, M. M	Newton.
Smith, V. R. (T.)	Fulton.
Stephens, P. V	Florida.
Strauss, H. M. (T.)	Fulton.
Stribling, T. E. (T.)	Cobb.
Strickland, N. H	Gwinnett.
Strong, C. H	Chatham.
Sullivan, W. L. (T.)	Burke.
Sutker, S. (T.)	Chatham.
Thornton, L. (T.)	Miss.
Van Vorst, J. P	Ware.
Waddill, W. W	Virginia.
White, R. B	Tennessee.
Whitner, H. F	Fulton.
Wiggs, H. L	Pulaski.
Wright, A. H	Gordon.
Young, S. M., Jr	Brooks.

Apprentice Class.

Allen, G. L	Chatham.
Altmayer, R. F	Bibb.
Ashford, H. C	DeKalb.
Aycock, J. C	Gordon.
Aycock, R. H	Gordon,
Bayard, N. R	Floyd.
Bean, J. S	Habersham.
Beck, A. E	DeKalb.
Beauchamp, W. L	Pike.
Blackford, A. L	Fulton.
Boyd, G. M	Bartow.
Brogdon, G. S	Gwinnett.
Broomhead, E. B	Fulton.
Brown, E. R	Coweta.
Burns, W. C. (T.)	Banks.
Bussey, E. H. (T.)	Randolph.
Butler, W. J	Hall.
Calloway, H. I	Bibb.
Carlton, L. D	Greene.
Collier, L. S	Fulton.
Collins, J. D	Fulton.
Cook, J. E	Pulaski.
Cooper, R. F	Coweta.
Corley, J. N	Newton.
Cornwell, G. H	Chatham.
Cowan, R. W	Pulaski.
Crane, C. L. (T.)	DeKalb.
Daniels, L. C	Fulton.
Dargan, J. T	Fulton.
Davis, C. K	Chatham.
DeFoor, J. M	Clayton.
Denham, J. M. (T.)	Putnam.
Doyle, V. H	Harris.
Dunn, E. C	Florida.
Eagan, H. E	Fulton.
Farlinger, W. H	Fulton.
Fain, H. G. (T.)	Fulton.
Fenn, F. L	DeKalb.
Frazier, C. E	Thomas.
Fuller, R. Q	Fulton.
Gann, G. K	Fulton.
Garner, W. D	Fulton.
Gregg, R	Fulton.
Hager, G. A	Lumpkin.
Hamilton, C. L	Whitfield.
Harris, E. R	Henry.
Harrison, G. W	Fulton.
Hartz, M. A	Bibb.
Hazzard, J. P	S. C.
Head, H. W	Pike.
Heyward, W. S	Chatham.
Hightower, E. W	Fulton.
Hills, G. B	Fulton.
Houseal, J. W	Polk.

Hosford, E. C	Dodge.
Howard, J. H	Florida.
Howard, W	Fulton.
Inglis, W. L. (T.)	Florida.
Irish, J. St. A	Fulton.
Jones, J. W	Putnam.
King, F. M	Bartow.
Kroner, F. A	Clark.
Lowther, B. F	Polk.
Loyd, J. C	Troup.
Lykes, L. G	Florida.
Mathewson, J. H	Fulton.
McClure, L	Floyd.
McConnell, J. H	Bartow.
McDaniel, V. J. (T.)	Rockdale.
McDonald, J. B	Fulton.
McGhee, E. P	Floyd.
McLarty, J. W	Carroll.
Montgomery, W. F	Floyd.
Morrison, W. F	Dade.
Moore, R. H	Hancock.
Morton, F. W	Clark.
Murphy, W. W	N. C.
Orr, S. M	S. C.
Pate, J. H. (T.)	Pulaski.
Paulsen, G. C	Chatham.
Parker, G. W	Richmond.
Pendleton, C. R	Bibb.
Pennington, M. F	Morgan.
Perry, A. E. (T.)	Texas.
Porter, R. B	Texas.
Pringle, W. A. (T.)	Thomas
Pritchett, R. H	Carroll.
Roberts, B. T	Walton.
Roberts, A. S	Walton.
Samuels, L. M	Fulton.
Schlesinger, J. A	Fulton.
Schroder, B. A. (S. M.)	S. C.
Schofield, D. L	Bibb.
Sheridan, M. G	Fulton.
Simpson, D. T	Miss.
Smith, F. H. (T.)	Fulton.
Smith, S. K	Irwin.
Spence, J. R	Mitchell.
Sperry, M. E	Macon.
Spratlin, F. M	Fulton.
Stanton, T. D. (T.)	Walton.
Steele, B. W	Fulton.
Stiles, W. H	Bartow.
Summey, H. H	DeKalb.
Tatum, C. S. (T.)	Dade.
Thompson, P. W	Fulton.
Towers, J. H	Floyd.
Walden, F. J	Jefferson.
Walker, T. D	Pulaski.
Watson, J. G. (T.)	Cobb.
Weatherly, E. B	Clark.
Weeks, J. E	Chatham.
Wilby, G. R. (T.)	Fulton.
Wilson, J. W	Carroll.
Woodroof, J. L	Chatham.
Word, W. B. (S. M.)	Troup.
Wright, A. R	Floyd.
Wynn, V. H. (T.)	Floyd.
Yancey, G. H	Fulton.
Zellner, T. B	Monroe.

Sub-Apprentice Class.

Adler, B	Calhoun.
Allen, A. A	Fulton.
Allison, P	Gordon.
Angier, E. A	Fulton.
Armitage, G	Pierce.
Ash, R. R	Clark.
Ashburn, H. I	Dodge.
Ashcraft, L. C	S. C.
Barrett, R. L	Whitfield.
Baumgartner, C. J	Glynn.
Beall, J. F	Va.
Berkele, E. B	Fulton.
Brigham, W. B	Richmond.
Boyd, C. F	S. C.
Brennan, E. L	Muscogee.
Bussey, F. B	Randolph.
Calloway, O. D	Morgan.
Carter, P. A	Terrell.
Casserly, W. W	N. C.
Cheatham, R. S	Chatham.

Clayton, L.	Bartow.
Coleman, G. M.	Decatur.
Cooksey, F. W.	Fulton.
Cowan, W. H	Newton.
Crawford, H. H.	Whitfield.
Crumley, W. G.	Fulton.
Davis, F. C.	Bibb.
Davis, C. G.	Florida.
Delk, J.	Cobb.
Edwards, A. M.	Baldwin.
Ellington, G. G.	Fulton.
Fagan, F. J.	Fulton.
Fleming, S. S.	Glynn.
Floyd, C. A.	Darien.
Fowler, W. C.	Clark.
Freeman, H. L.	Coweta.
Frix, W. A.	Gordon.
Fuller, T.	Glynn.
Geissler, T. W	Greene.
Glenn, M. T.	Rockdale.
Green, M. H.	Clay.
Greer, L.	Fulton.
Gilbert, H. A.	Dade.
Griffin, W. W.	Florida.
Hallman, J. F.	Fulton.
Hamilton, B.	Fulton.
Harris, W. B.	Baldwin.
Head, J.	Spalding.
Henderson, R. C.	Newton.
Henry, W.	Fulton.
Heyward, E. T.	S. C.
Holt, V. P.	Gilmer.
Ingle, J. P.	Fulton.
Jackson, E. R.	Walker.
Jerger, J.	Thomas.
Jones, D. E.	Tatnall.
Jones, J. C.	Bibb.
Kennerly, C. H.	Putnam.
King, W. R.	Chattahoochee.
Lee, F. W.	Fulton.
Lee, R. H.	Terrell.
Lee, W. C.	Terrell.
Litchfield, E. L.	Cobb.
Lycett, E. C.	Fulton.
Lykes, T. M.	Florida.
Mallard, W. H.	Fulton.
Mathews, W. H.	Montgomery.
Martin, C. C.	Chatham.
Meckel, A. W.	Fulton.
Melton, P. K.	Terrell.
Moore, J. M.	Fulton.
Moore, J. W.	Brooks.
McAden, R. Y.	N. C.
McCoy, I. D.	Indiana.
McGhee, W. F.	Tenn.
McGhee, H.	Floyd.
McPhail, J. D.	Muscogee.
Newton, G. S.	Habersham.
Pace, N. E.	Terrell.
Parker, F. K.	Tenn.
Phipps, H. L.	Mexico.
Pool, W. T.	Pickens.
Porch, E.	Merriwether.
Ravenel, H. S.	McIntosh.
Reese, W. O.	Lumpkin.
Rice, P. B.	Emanuel.
Roberson, F. H.	Laurens.
Rogers, M. A.	Laurens.
Rowan, F. M.	Bartow.
Sawyer, C. M.	Polk.
Scaife, J.	Mitchell.
Simpson, D. T.	Miss.
Sims, H. H.	Fulton.
Smith, C. H.	Bibb.
Smith, D. D.	Decatur.
Smith, J. O.	Fulton.
Spence, H. E.	Haralson.
Stark, E. C.	Jackson.
Statham, S. E.	Sumter.
Stringfellow, W. A.	Fulton.
Sweet, C. A.	Fulton.
Swint, C. D.	Coweta.
Thompson, W. H.	Worth.
Thompson, L. M.	Fulton.
Torras, F. J.	Glynn.
Trautwein, W.	Fulton.
Veal, W. F.	Douglas.
Wallace, J. C.	Morgan.
Wells, Arnold.	Tex.
Whitehead, W. E.	Laurens.
Wilson, C. M.	Coweta.
Wilkinson, H. K.	Lowndes.

PRESIDENT'S OFFICE. ASSEMBLY ROOM OF TRUSTEES AND FACULTY.

OFFICE DYEING LABORATORY AND TEXTILE CHEMISTRY.

Witman, J. M	Bibb.
Wood, S. M	Floyd.
Wright, L. R	Newton.
Zachery, E. B	Fulton.

Special Textile, 1st Year.

Brinson, J. A	Richmond.
Brinson, P. P	Richmond.
Carlock, P. S	Texas.
Chandler, J. I	DeKalb.
Curry, H. H	Decatur.
Grace, E. H	Coweta.
Hudson, H	Troup.
Kreisle, S	Fulton.
Lamar, W. D	Bibb.
Lowe, G. O	Floyd.
Mansfield, J. B	Early.
Mason, C. H	Washington.
McKinney, W. S	Cobb.
McKnight, R. E	Coweta.
Minter, W	Butts.
Morgan, C. R	Fulton.
Newton, H	Monroe.
Pybus, G. W	Fulton.
Stacy, E. H	Fulton.
Stone, C. F	Fulton.
West, G. E,	Alabama.
Wharton, E. R	N. C.
Young, W. B	Brooks.

Special Textile, 2d Year.

Butler, H. G	Chatham.
Culberson, A., Jr	Alabama.
Herman, J	Bibb.
Riviere, H. R	Pike.
Scrutchins, J. G	Fulton.
Smith, C. B	Washington.
Total	431.

LIST OF DISTINCTION.

The following students deserve special mention for merit for the year 1900–1901:

Senior Class.

Towers, J. F.
Holtzclaw, B. W.
Holman, W. J.
Mead, A. S.

Middle Class.

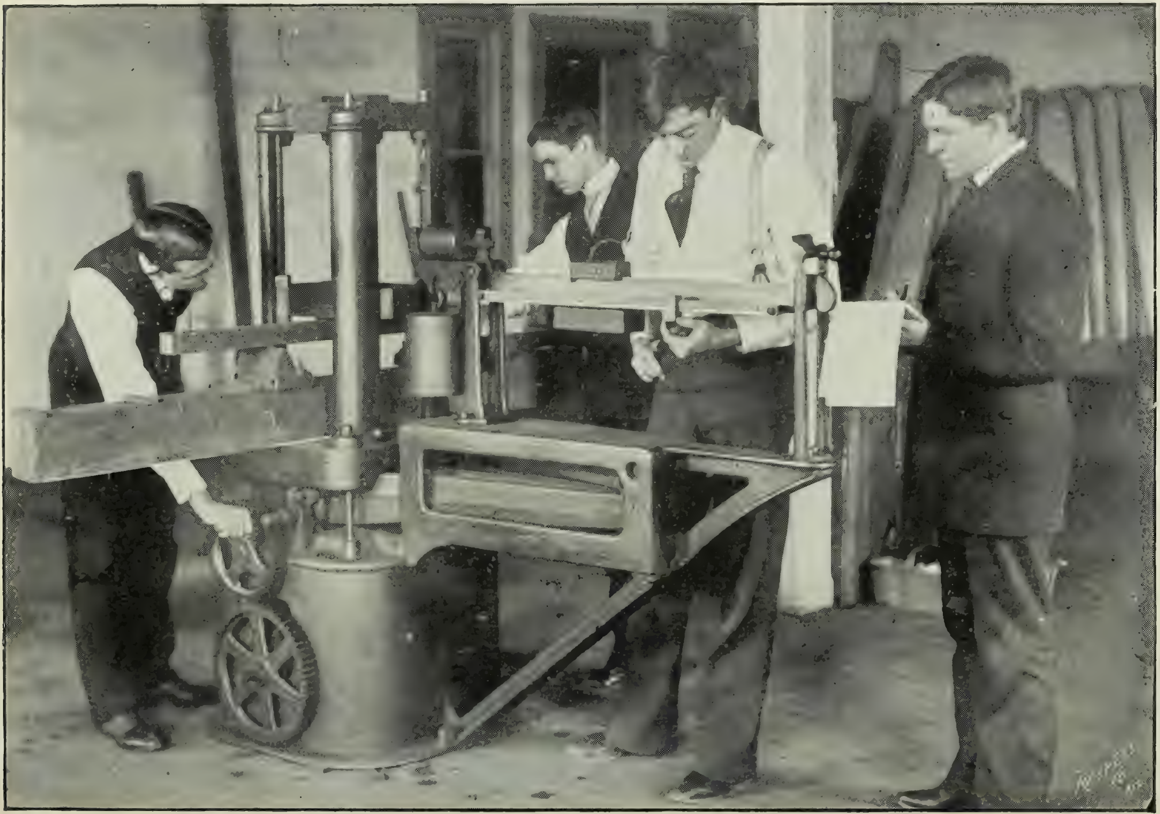
Berry, M. R.
Towers, D. D.
Kicklighter, C. H.
Klein, W. E.

Junior Class.

Fambro, W. M.
Rankin, W. S.
Cook, J. C.
Atkinson, H. W.

Apprentice Class.

Neely, F. H.
Redwine, L. S.
Harbour, G. A.
Scales, H. J.



IN THE TESTING LABORATORY.

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DEPARTMENTS.

DEPARTMENT OF MATHEMATICS.

In this Department, the base upon which the superstructures of the different departments of engineering are laid, every effort is made towards thoroughness. Unless proficiency is attained it is useless for the student to proceed, and, in fact, he is not allowed to do so.

More instructors are engaged in this Department than in any other, and often the sections are smaller in order to give as much individual attention as possible.

Unless an applicant for the Sub-Apprentice Class or Special Textile Course is able to meet the requirements on page 93, he should become so before coming to the School.

Unless an applicant is quite familiar with the requirements for the Apprentice Class as mentioned on page 93, he should apply for the Sub-Apprentice.

It is not sufficient for the applicant to say that he has "been over" the subjects required of him. He is required to convince the authorities that he can answer questions similar to those given on pages 103-6.

The requirements are not meant to be hardships or severe tests of the applicant's ability or memory, but they are meant to benefit him by placing him where he can make satisfactory progress, and where he will not be discouraged by requirements he is unable to meet.

Plato placed over his porch, "Let no one who is unacquainted with Geometry enter here." A successor to Plato said to an applicant who had no mathematical training, "Depart, for thou hast not the grip of philosophy." Likewise the humble teachers of mathematics of to-day realize the importance of preliminary preparation. They know that great advances in all fields of science demand not only that students entering the engineering courses have an acquaintance, but that they have also a familiarity with all of the branches of pure mathematics. Every young man who intends to enter this institution is urged to prior preparation in this subject before reporting for examinations. Coming better prepared than the requirements demand will prove a source of profit, of self-confidence, and of ability to master a course of study which the student will never fail to appreciate.

INSTRUCTION.

Recitations are made daily, an hour being devoted to each section. Perfection in the recitation system is attained by marking every student, as nearly as possible, daily, thereby requiring a thorough preparation of each lesson. With this end in view, classes are subdivided into sections, each section numbering, generally, from twelve to twenty students.

In the lower branches attention is given to continued drills in examples and problems, and to accuracy in recitation. In the higher branches interest is awakened by original problems and practical investigations, requiring a thorough understanding of the principles of the text. The study of the Differential and Integral Calculus is pursued and completed in the Middle Class, thereby enabling their early application in Mechanics. In surveying, instruction is given with the instruments in the field, by lectures and recitation in the class-room, and by mapping.

All students, except Textiles, are required to take surveying and field practice during the third term of the Junior year.

Requirements for Entrance.—See page 93.

Course of Study.—See page 68.

Specimen Examinations.—See page 103.

DEPARTMENT OF ENGINEERING CHEMISTRY.

The purpose of the course offered by this Department is to give the student, in the first place, a broad foundation in general and theoretical Chemistry, so that in his future work new problems may be met intelligently and solved. In the second place, to give him special training in those branches of Chemistry which have been most generally applied industrially, so that he may be immediately useful.

The degree conferred upon the graduates of this course is that of Bachelor of Science in Engineering Chemistry. A schedule of subjects required of candidates for this degree is given under "Course of Study," p. 79.

The graduate will be prepared to pursue the subject either on its manufacturing or analytical side. With respect to his fitness to take up work in chemical manufacturing, the course offers exceptional opportunities; as the work in Mechanical Engineering, embracing considerable shop practice, mechanism, elementry mechanics, and the steam-engine, will enable him to understand machinery, superintend the running of it, and take charge of various mechanical operations; the course in drawing will enable him to understand mechanical drawings and express his ideas to some extent by them; the course in Electricity will enable him to understand electrical appliances, and to superintend industrial operations carried on by means of electricity; his knowledge of Chemistry will enable him to determine the relative value of the raw materials offered by dealers, and to conduct intelligently operations based on chemical principles, detect imperfections in them and suggest improvements. The work of the course being mainly chemical, the graduate will be prepared to undertake analytical work of almost any kind, and should be valuable in a laboratory, whether for general analytical work or for special work.

The following is a brief description of the course, in which it will be observed that laboratory work is a prominent feature throughout:

1. General Chemistry. All Students.

The work of General Chemistry extends through the Apprentice year, three hours per week being given to lectures and recitations, in which the subject under consideration is amply illustrated by experiments serving to make clear and impress the principles and facts of the lesson. The lecture course is accompanied by a laboratory course of two hours per week, in which the student becomes acquainted with chemical apparatus and manipulation, and is taught to observe chemical phenomena with care, and record them accurately in his note-book. Remsen's Introduction to the Study of Chemistry is used as the text-book.

2. Qualitative Analysis. Chemists.

This subject is studied throughout the Junior year, averaging eight hours per week in the laboratory. The student is given a large number of mixtures to analyze, and in the latter part of the course minerals and alloys, the proper determination of which necessitates the careful observation of many phenomena and the drawing of correct inferences from them, while at the same time his chemical knowledge is made permanent and accurate. Frequent quizzes and examinations are given to ensure that the work is being done intelligently and not by rote. Noyes' Qualative Analysis is used as the guide, and Fresenius' Qualitative Analysis as reference.

2a. Qualitative Analysis. All students except Chemists.

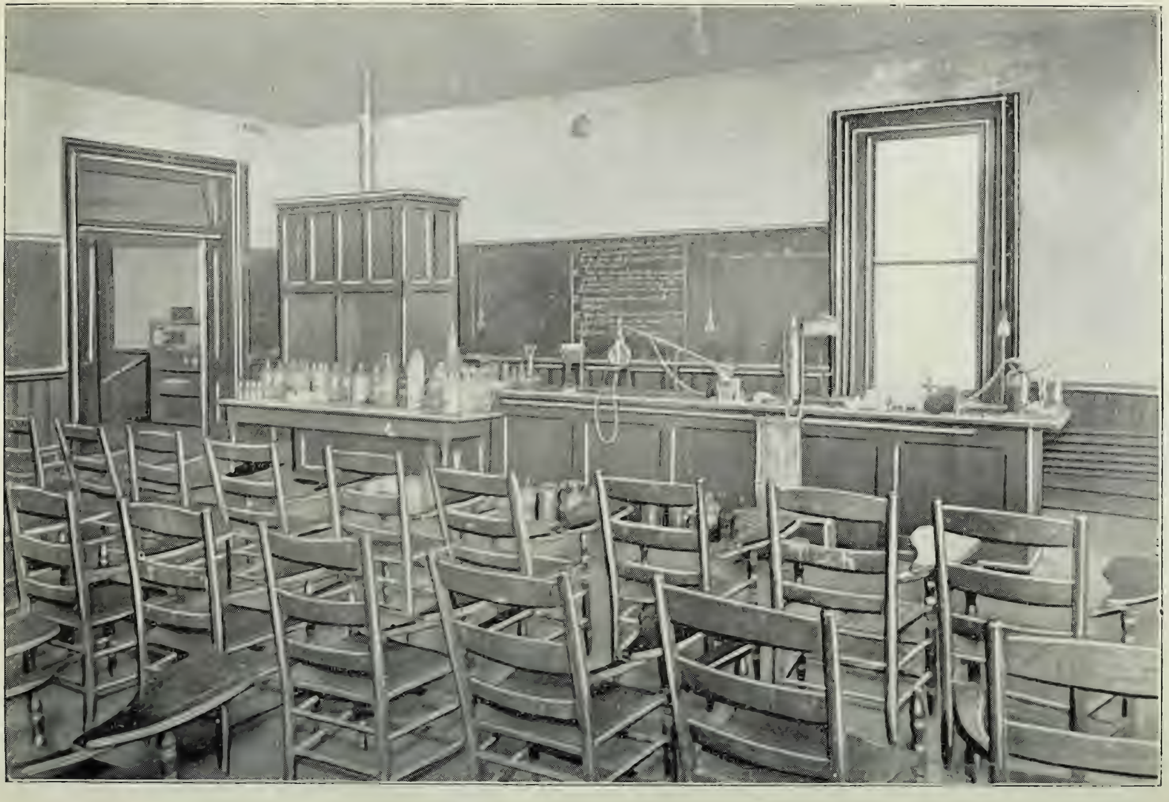
This is a course of four hours per week, extending through the Junior year, similar to the course outlined above, though abbreviated to meet the demands of those students who do not expect to pursue the subject of Chemisty.

3. Quantitative Analysis. Chemists.

This course begins in the second term of the Junior year, and extends through the second term of the Senior year. It consists of general and applied Analytical Chemistry.

(a) General Methods.

This work is intended to give the student a thorough ground-



MAIN CHEMICAL LECTURE ROOM.

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work in analytical methods as a basis for the special work to be taken later, and broad enough to enable him to cope with new problems with which he will necessarily meet in the pursuit of his profession.

(b) Applied Analytical Chemistry.

In this work commercial products will be selected for analysis, such as bleaching powder, soda, mordants, alloys, iron ores, slags and limestones.

Fuel Analysis. A complete and proximate analysis of coal, and the determination of its heating power by calorimeter. The bearing of these results on the value of the fuel will be dealt with in the lecture course.

Iron and Steel Analysis. The usual determinations made on iron and steel, and this, together with the analysis of iron ores and limestones, and the work in fuel testing, will equip the student for work in laboratories connected with blast furnaces and steel works.

Water Analysis. The determinations usually made to ascertain the fitness of water for use in boilers and dyeing, and for drinking purposes.

Fertilizer Analysis. The analysis of a complete fertilizer by the methods recommended by the Association of Official Agricultural Chemists.

Assaying. The assay of gold, silver, and lead ores.

Gas Analysis. The analysis of several gaseous mixtures of common occurrence, such as illuminating gas, gases from sulphuric acid works, and chimney gases. The lecture course will deal with the calculations from these analyses, and with discussions of the results in their relation to the economical management of the operations.

Oil Testing. The determination of the flash point of kerosene, the viscosity, flash point, gravity, cold test, etc., of lubricating oils.

3a. Quantitative Analysis. Textile Engineers. See p. 27.

4. Organic Chemistry. Chemists.

This course extends through the Middle year, and consists of recitations and lectures, illustrated by numerous experiments. Remsen's Organic Chemistry is used as the text-book.

The laboratory course, extending through the Middle year, will familiarize the student with the apparatus used in organic work, and with such operations as fractional distillation and crystallization, steam distillation, saponification, nitration, sulphonation, diazotization, etc., operations conduced on a large scale in color works and other chemical industries. He will prepare a number of commercial products, such as nitro-benzene, aniline, phenol, and dye stuffs; and also will be required to make a satisfactory organic combustion.

4a. Organic Chemistry. Textile Engineers. See p. 27.

5. Metallurgy. All students except Textile Engineers.

A brief course in the Metallurgy of Iron and Steel is given during the second and third terms of the Middle year. This course deals with the refractory materials used in furnace linings, the different types of furnaces, iron ores, the production of pig-iron, wrought iron and steel, and the fashioning of them into merchantable products. A short course of lectures is given on the effects of carbon, silicon, sulphur, phosphorus, and manganese on iron, and the production, properties, and uses of "special" steels.

In connection with the above course a series of lectures on Fuels is given, which deal with the methods of determining the calorific power of fuels, pyrometry, the sources and production of the different fuels, natural and artificial, and their suitability for different uses.

6. Industrial Chemistry. Chemists.

This course, extending through the Senior year, will consist of lectures and recitations dealing with the preparation of various products from the raw materials, such as sulphuric acid, hydrochloric acid and sodium sulphate, soda, bleaching powder, fertilizers, lime and cement, glass, soap, illuminating gas, sugar, paper, oils, etc.

7. Physical Chemistry. Chemists.

This course extends through the Senior year, and will consist of lectures and laboratory work. It will deal with such subjects

THE QUANTITATIVE LABORATORY.

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as the laws of gases, solution, vaporization, condensation, fusion and solidification, electrolytic dissociation, etc., and is of practical value in throwing light on separations and purifications brought about by such physical processes as evaporation, distillation, electrolysis, filtration, crystallization, etc., processes very common in chemical manufacture, and which require intelligent control in order to secure the best results.

8. Dyeing. Chemists and Textile Engineers. See p. 27.

9. Thesis.

In the latter part of the Senior year the student prepares a thesis requiring original work.

DYEING AND TEXTILE CHEMISTRY.

Required of All Textile Engineers, and in Part for Engineering Chemistry.

This Department occupies the east end of the basement in the A. French Textile School. The laboratory and dye house are well equipped with all necessary apparatus, chemicals, dye stuffs, fixing agents, etc., for proper instruction. The School owns a valuable collection of dyed specimens, yarns, chemicals, dye woods, and coloring matters, which are examined by the student.

Dyeing, or, more specially, Textile Coloring, was long considered an art, but it is now rapidly approaching a true science. We study the nature of our material, composition and structure of the various fibres, the properties and behavior of certain chemicals and dye stuffs.

Bleaching of the common fibres demands special knowledge, and rapid advances have been made through careful study of the chemistry of this subject. Large works are erected for the bleaching of cotton in the varied forms of manufacture, and the industry calls for men who have had a good training in chemistry.

It is the object of this course to give the student a clear idea of the fundamental principles which underlie the arts of bleaching and dyeing, by means of lectures, recitations, experiments, practical work and research.

The outline of the course is as follows:

Inorganic Chemistry. Apprentice year, as outlined on page 76.

Elementary Organic Chemistry, Junior year, which requires three hours per week through the year, two hours lectures and recitations, and one hour laboratory work. The subjects studied include Ultimate Analysis, Cyanogen and some of its compounds; Fatty hydrocarbons, Halogen Derivatives, Fatty alcohols, Ethers, Acids, Aldehydes and Ketones, Carbohydrates, Aromatic hydrocarbons, Aromatic hydroxyl compounds, Aromatic acids, Aromatic compounds containing nitrogen; Dyes.

Quantitative Analysis, Middle year, to which the class devotes four hours per week through the year. The work consists of use of the balance, gravimetric analysis of simple salts and materials used in the textile industry, volumetric analysis, use of indicators, acidimetry and alkalimetry calculations and reports.

Dyeing and Bleaching, Middle class, are taught by means of lectures and recitations two hour per week through the year. The following mentioned lectures are examples; Cotton Bleaching, Mercerized Cotton, Artificial Silk, Wool Scouring, Silk, Linen, Carbonizing, History of Dyeing, Theories, Water, including impurities and purification, Natural Coloring Matters, Artificial Dye Stuffs, Mordants.

Experimental Dyeing. The Senior Class works in the laboratory and dye-house eight hours per week through the year. The student bleaches cotton cloth and yarn, and dyes several kinds of textile materials on a small scale, being furnished with cotton, wool and silk, at cost, for this purpose; but the class occasionally, and at the discretion of the professor, dyes larger quantities of cloth and yarn. Each and every student is required to mount specimens of his work on suitable cards, with the necessary notes, for future reference; several of these cards are retained as the property of the School.. The work includes: *Technology of Vegetables and Animal Fibres:* Cotton, linen, wool, silk, etc., chemical and physical properties, microscopical study, action of chemicals, heat, frost, etc. *Operations Preliminary to*

ONE OF THE CHEMICAL LABORATORIES.

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Dyeing: Bleaching, wool scouring, silk reeling and scouring, action of soaps, etc. *Chemicals not Dye Stuffs:* Aluminum, iron, tin, chromium, copper and organic mordants; fixing agents, leveling agents and assistants. *Natural Coloring Matters:* Application of indigo, logwood, cutch, fustic, Brazilwood, cochineal, etc. *Artificial Coloring Matters:* Examples from each class are studied and applied by the student. *Compound Shades. Matching off. Testing and Valuation of Dye Stuffs*: The samples dyed are tested as to permanence against the action of light, friction, washing, acids, alkalies. *Detection of Dyes in the Fibre. Comparative Tests. Manufacture of Dyes*: The class prepares dyes and then applies them properly. *Thesis work.*

DEPARTMENT OF MECHANICAL ENGINEERING.

All instruction in this department is based on strictly utilitarian lines.

The graduate's commercial valuation, on leaving the technical school, is invariably based on his helpfulness—on what he can *do*, and not on what he *knows*. He must *know* things and how to *do* them, and not simply know *about* them.

It is felt that a student purposing to take a course in Mechanical Engeering must at once manifest marked aptitude in at least one of the three branches: He must have special taste for, and ability in, the understanding and solution of mechanical problems, which requires a good knowledge of mathematics; or he must show great quickness of insight, accuracy, and value in the drawing-room; or he must show marked ability as a handicraftsman in the shops. To be a successful engineer, he must excel in all three of these branches. If he excels in none, the case is plain that he has mistaken his calling, or his parents are mistaken, and it is a waste of time and of their money for him to remain here, and he is early advised to seek education in some other field of effort.

The studies taught in this department comprise Kinematics and Mechanism, Machine-Design, Analytic Mechanics, Applied Mechanics, Materials used in Engineering Structures, Strength of Materials, Steam Engineering, Prime Movers, and Laboratory experiments.

In Kinematics—the Geometry of Machinery, or Pure Mechanism—the geometric relations of the moving parts of machines are investigated. This includes the proper forms for teeth of Spur Gears, both Epicycloidal and Involute (and their approximations by the use of the various forms of Odontographs), Bevel Gears, and Worm Gearing. This study is supplemented in the drawing-room by a thorough course in drawing the various forms of teeth, and familiarity gained with the best modern shop practice in gear-cutting. Pure Mechanism also includes the study of various types of Epicyclic Trains, and a careful analysis of the velocity ratios of various parts of the steam-engine, with and without beams. This study will, in the near future, be illustrated by a set of excellent models, to be constructed in the school shops by the students.

The study in Machine-Design will be by text-book and lectures, and also by practical application in drawing. It will include the various parts of machine tools, the steam-engine, pumping-machinery, electrical machines, riveted joints, and the proper forms for strength and efficiency of the various parts of other machines in common use. A very important adjunct to this course of instruction will be the study of a magnificent collection of blue-prints of details of a large variety of machinery, for which we gratefully acknowledge obligations to the Calumet & Hecla Mining Company, of Boston; to the Dickson Manufacturing Company, of Scranton, Pa., and others. This incomparable collection of prints will be augmented from time to time.

In Analytic and Applied Mechanics the various forces in statics and dynamics are studied, and a wide range of problems in their practical application to machines is solved. The subjects to which special attention is directed are the various forms and expressions for force; the composition and resolution of forces, and their application to cranes, derricks, etc.; determination of center of gravity; friction; the principle of virtual velocities, and its application to the steam-engine; laws for the transmission of force in the various mechanical powers (so-called); equilibrium and pressure of fluids; accelerated motion and its application in particular to the steam-engine reciprocating parts; eccentric and cam motions; the theory of impact; constrained motion and centrifugal force; moment of inertia, and its application to the fly-wheel, etc.; the actions of governors; kinetic and potential energy; the simple, compound, and ballistic pendulum, etc.

The materials used in engineering structures will principally embrace the mechanical properties and treatment of iron and steel, and the various forms of "ingot metal"—Bessemer and Open-Hearth in particular—various alloys, timber, and cements.

The strength of materials will comprise a combined investigation in class-room and laboratory of the strength of engineering structures, such as beams, pillars, or columns, and girders; the tensile, torsional, and transverse strength of wood and metals, graphic analysis of stresses in various forms of trusses; bursting strength of boilers, etc.

Steam Engineering will include the science of Thermodynamics—the conversion of heat into work in the steam-engine; the attendant losses and means of partially preventing the same; elaborate series of investigations, combined with the practical use of steam-engine indicator; types of indicators; effect of cylinder condensation; losses due to clearance and compression, constructing theoretical cards for compound, "triple expansion," and "quadruple expansion" engines; various types of valve gears in common use; steam-boilers, etc.

In addition to the course of Steam Engineering will be given a study of other prime movers, such as turbines, over-shot and reaction wheels, and a study of the best modern examples, as the "Hercules," "Victor," "Pelton," "Hurdygurdy," etc.

Laboratory practice has been largely indicated in what precedes. It involves the use of various engineering appliances, such as pyrometers, planimeters, gauges, test-pumps, dynamometers, etc. A laboratory is now being fitted up with the foregoing appliances, and will be supplied with motive power by dynamos, and also by gas engine. It will have a large tensile-testing machine, a torsional-testing machine, and a transverse-testing machine, with micrometer guage, etc., etc., for the carrying out of accurate tests as indicated above.

The Mechanical Laboratory is supplied with a 50,000-pound Olsen Testing machine, which is furnished with a fine extensometer for obtaining extension and set, and an attachment constructed by ourselves for making transverse tests on large pieces.

There has been constructed in the school shops, from our own designs, a transverse-testing machine for making transverse tests on iron and wooden beams, of a more delicate character than can be made on our larger machines. This machine reads accurately by quarter-pounds up to two thousand pounds.

There is a locomotive link-motion model constructed by ourselves; a section model of a steam pump, donated by the Deane Co., of Holyoke, Mass.; a section model of Buckeye Engine, donated by the Buckeye Engine Co.; a small, but beautiful compound engine, with Joy valve-gear, donated by Mr. Thos. Elliott, of Atlanta; a fine model of Hooke's universal joint, constructed by ourselves; a 10-inch standard gauge and test-pump; two Thompson indicators; a Coffin averaging instrument; planimeters; pyrometers, high-grade thermometers, etc., for making condensation and calorimetric tests, and a Barrus calorimeter.

MECHANICAL DRAWING.

Mechanical Drawing is pursued throughout the entire course of four years, it being considered that efficiency in the drafting-room is second only to proficiency in the shop.

The beginning (Apprentice) class first takes up free-hand geometric drawing, which is taught by lectures and blackboard exercises. This is followed by free-hand elementary linear perspective, sketching from models, with shades and shadows, sketches both in perspective and orthographic projection, from patterns, castings, and parts of machines.

IN THE DRAWING OFFICE.

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After three months' free-hand work the Apprentice class begins instrumental linear drawing, the construction of geometric problems, etc., followed by isometric, cabinet and orthographic projection, all drawings being made to scale. To assist in the theoretical study of drawing Descriptive Geometry in its application to orthographic, common oblique and perspective projections are studied for the remainder of the year.

Students are advised not to supply themselves with drawing-instruments before consulting the professor in charge. All necessary instruments of the best quality need not cost over $13.00.

The Junior year is devoted to drawing problems in every-day practice in all projections, careful consideration being made in the selection of the problems so that the student can apply directly those principles he has learned in his study of the theory of drawing, thus making the connection between theory and practice clear and profitable to the student.

The Middle year commences with the drawing of machine parts, as spur, screw, bevel and various types of gears, laying out of cams and motion diagrams, etc., etc., being followed by complete drawings of machines, making the assembly drawing and then the complete detail drawings.

During this year tracings from the pencil drawings and blue-prints from the tracings are required of each student. Strict attention is given to the execution of all drawings, and the best modern Drawing-Room practice of the leading manufacturing establishments of the country is followed as closely as possible.

The drawing of the fourth (Senior) year is devoted to machine-design in detail, in which the methods obtaining in the best modern shop-practice are carefully incorporated with purely theoretical considerations. In all the advanced drawing, there is continual connection between the work done in the drafting-room and the instruction given in the class-room. At no time is any attempt made to procure pretty pictures which delight the artistic eye of the layman, but which are of no use to anybody, for any purpose. Such amateur work is always necessarily far inferior to, and immensely costlier than, the work of the photographic camera. All drawing, from first to last, is made accurately to scale, and working dimensions plainly given. In short, an effort is made to teach the student how to make correct, accurate, detail working-drawings.

Students entering the school as Juniors will be required to draw extra time two hours per week for two years, and hand in two copy-books of lettering.

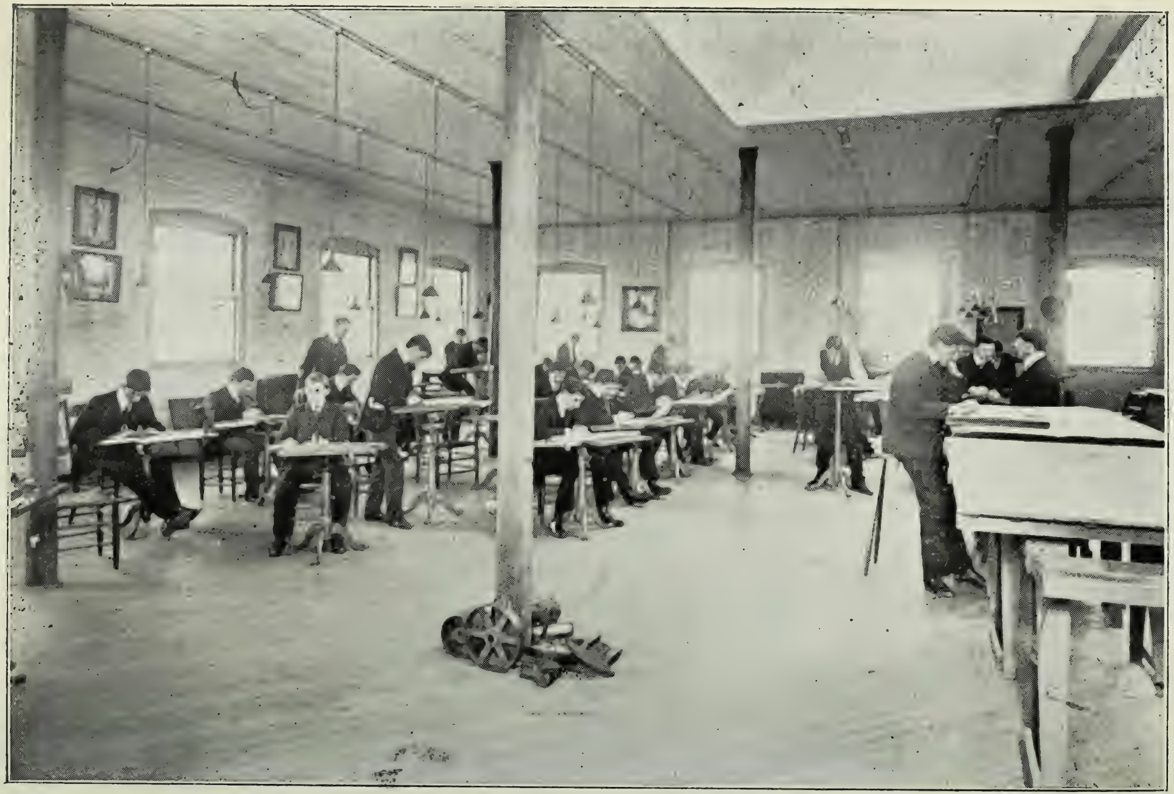
WORKSHOP PRACTICE.

A distinctive feature of this school is the mechanical workshops. It is safe to say that in no other school in our country is so much emphasis placed on the importance of the practical skill and experience to be gained in machine-shop work of the very highest class. We challenge comparison. And high as our grade of work is now, it is continually growing more valuable, as a record of our work during the present year and preparations for next year will show.

The shops where students practice occupy a commodious two-story building, 310 feet long by 40 feet wide, with wings 30x40 and 12x40. The building contains the general offices of the shops, drafting-room, iron and wood-rooms, engine and boiler-rooms, wash-rooms and foundry. All these rooms are well equipped with the best modern iron and wood-working machinery and tools.

The shops are no longer run on the contract system. No outside work of any kind is done. A general idea of the character of work carried out may be gathered from notices of machines, etc., now being manufactured in the shops, at the end of this article. All work done in the shops is from our own design, from working-drawings prepared by the students under careful and experienced supervision. The work in all departments calls for the highest abilities of the student.

The first or Apprentice year is devoted entirely to wood-work. This includes a course of elementary instruction in laying out work with knife and pencil and the use of the ordinary hand



IN THE DRAWING ACADEMY.

tools, such as saws, planes, chisels, etc. This is followed by a course in elementary pattern-work, introducing the use of the turning lathe. After these elementary exercises the student works altogether upon practical work, which, for want of a better name, may be classed as cabinet work. It consists for the most part of equipment for the shops or school, such as cabinets, tables, drawing-cases, drawing-boards, physical apparatus, etc.

Instruction and practice is given in the use and care of the wood-working machinery, large and small circular saws, band and scroll saws, cylinder and buzz-planers, boring, mortising, and tenoning-machines. Two days of eight hours each, a week, are devoted to shop practice throughout the Apprentice year. About two-thirds of this time is spent in the wood-working shop. As soon as the student has acquired sufficient skill in the use of wood-working tools to begin elementary pattern-work, he is at once sent to the foundry, where he is given thoroughly practical work in the elementry practice of moulding. This first work in foundry is given with the sole purpose of aiding the student to understand the conditions imposed by the foundry on the pattern-maker. Experience has shown that the progress of the student in pattern-making is much accelerated by this method; that many puzzling questions relating to draft, core-boxes, etc., are at once easily and quickly made clear to him in the foundry, which he can never, no matter how well instructed, fully comprehend anywhere else.

Simultaneously with the foundry instruction, the student is given work in pattern-making. The two processes so closely related are thus carried on together; and the work in the pattern-shop is not merely manual training school exercises. It is all work of a high class, carefully designed by an experienced practical engineer, every piece of which forms a part of some useful machine.

Throughout the remaining three years, each student devotes one day each week to the work in the shops. Students who are prepared to pass up the studies of the first year in the academic departments, and enter the school as Juniors, are required to work one-half day extra each week for three years.

The work in the second, third and fourth years (Junior, Middle, and Senior) is divided between the four departments of the shop, viz.: pattern-making, foundry, smith-shop, and machine-shop. During these years more time is devoted to the machine-shop than to any other department.

The foundry, which is unlike most foundries, in being a bright, cheerful place, is thoroughly equipped, having, besides a main moulding-room with a floor area of 40x90 feet, a core-room, two ovens for baking cores, a Collieau cupola in a fire-proof annex having iron charging-floor and iron roof, a separate building in which are placed the rumblers and the pickling vats, and another building for the brass foundry.

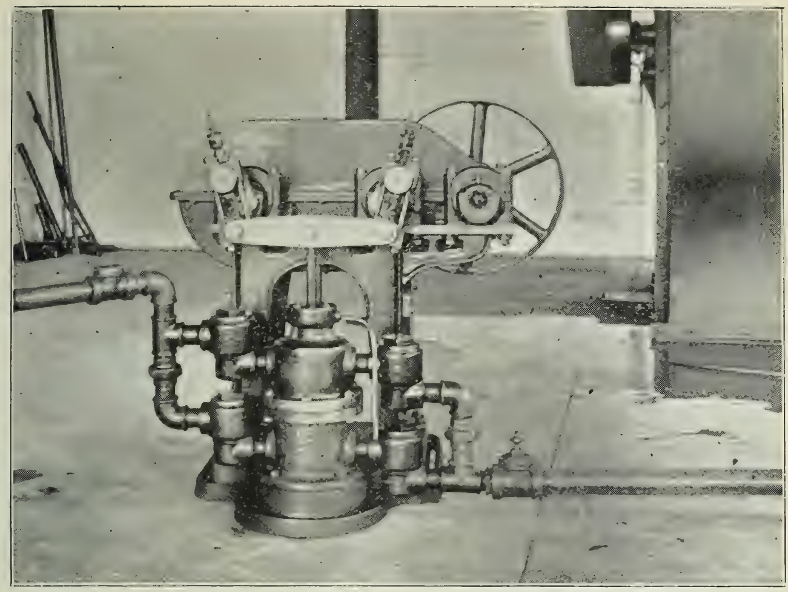
In the foundry the student is given careful and efficient instruction in green and dry-sand moulding, core-making, mixtures of iron, brass-founding, and the mixtures of the various useful bronzes, aluminum-casting, and the aluminum bronzes. There is also a separate cupola for the reduction of "burnt-out" pure copper electric wire to pure pig lake copper.

The smith-shop occupies a separate new building, embodying the latest ideas in smith-shop construction. It is 37x70 feet with all four sides solid glass. It is equipped with twenty-one forges, with Peter Wright's best forged anvils, and blast pipes and smoke ducts under ground. Smoke is carried away by a powerful exhaust fan, on the down-draft system, leaving the overhead space entirely free for admission of light. In one end are the foreman's office and a room fitted up with benches and vises for bench-work in forging. The smoke-exhaust fan is located overhead in the foundry (in another building), and the system works admirably. A more efficient and cheerful blacksmith shop it would be difficult to imagine.

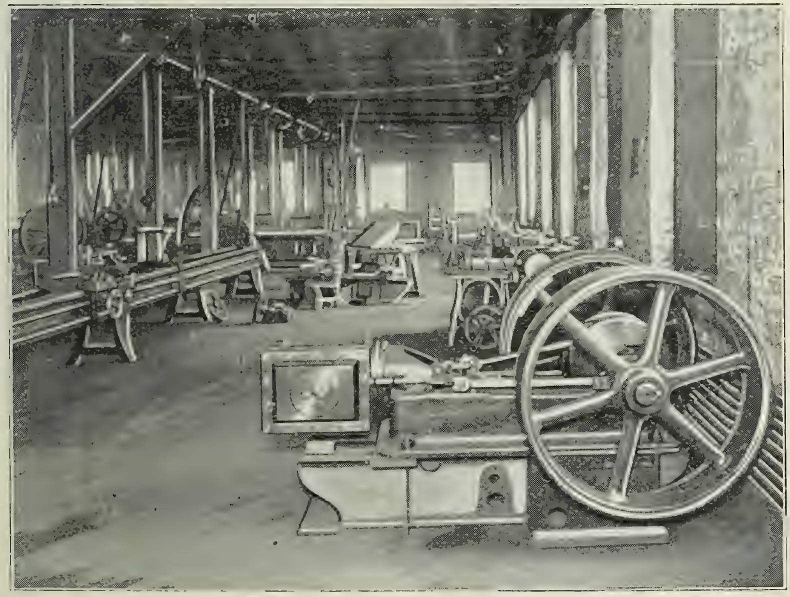
There will be installed in the smith-shop, during the coming year, three double emery wheel stands, now building in our own shops, for tool dressing, polishing, etc.

All the shops are lighted by electricity, both arc and incandescent.

In the smith-shop the student is first given purely manual-training tasks in iron-forging, which are continued only so far



POWER FEED PUMP. CONSTRUCTED BY STUDENTS.



50-H. P. ENGINE, NOW IN USE. BUILT BY STUDENTS.

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as will enable him to acquire sufficient skill to forge some useful article. After that his work is confined to such articles as possess intrinsic value. We received a silver medal at the Cotton States and International Exposition on our display of small tools made in the smithery, such as hammers, masons' and moulders' trowels and tools, turning chisels, gouges, cold-chisels, swages, spawls, etc. The student also acquires skill in forging and dressing lathe and planer tools; welding, tempering, and annealing steel; the brazing and soldering of various metals, case hardening, bluing, etc. It is to be distinctly understood that the student does not simply observe these operations as they are performed by a skilled artisan, but is required to acquire the handicraft himself, under expert instruction.

The machine-shop is well equipped with lathes (two of which are very large ones,) planers, grinding tools, universal milling-machine with spiral attachment, shaping-machine, and a large assortment of small tools in a tool-room conducted strictly on the check system. To this equipment we are constantly adding tools of our own manufacture, having added a 20-inch-by-6-feet iron planer of our own design (upon which we received a silver medal at the Cotton States and International Exposition).

Beginning in this department of the shops are first given instruction in chipping and filing. The elementary tasks are of the usual manual training-school order, the first lesson being to chip and file a rought cast-iron block into a cube, with flat faces, sharp corners and right angles. Only a few lessons of this character are given, as it is felt that here, as elsewhere, the sooner the student can be put upon productive industry the better. It can not be successfully denied that a student takes more interest in work of a useful character than he does in a mere task. He can be better taught to turn and grind round fits, scrape true, flat surfaces, and drill flutes and spirals in useful articles, parts of machine tools, for instance, then in manual training tasks to be cast into the scrap-heap.

All work of whatever kind in all departments (excepting, of course, the foundry) is done to working-drawings. No haphazard, no chance, no "beginning at nothing and ending nowhere," is allowed. Under certain conditions students are allowed to work in the shop extra time on things for themselves. Work of this character must meet the approval of the head instructor, must be made to a working-drawing or a carefully-prepared dimensioned sketch, and must be of a character to reflect credit on the student and possess intrinsic value. As work of this character may be mentioned small steam-engines, electric generators, motors, etc.

Students are also instructed in the practical management of the shop steam-engines, boilers, firing, etc.

The following partial list may give some idea of the character and scope of the shop work. There were built last year for the Swann Dormitory:

Sixty-five iron beds.

Thirty-five oak wash-stands.

Sixty oak tables.

Fifty oak bureaus.

Twenty hand-looms for the Textile Department, besides a large amount of repair work.

Sixty iron drawing tables, for the Department of Drawing.

About two hundred drawing boards.

A large number of fine tools in the smith-shop, such as drawing knives, carving knives by the score, turning gouges, and chisels for our own use.

A 50-horse-power high-speed engine, now driving our shops.

Four double emery wheel stands.

Four 20x6 feet iron planers.

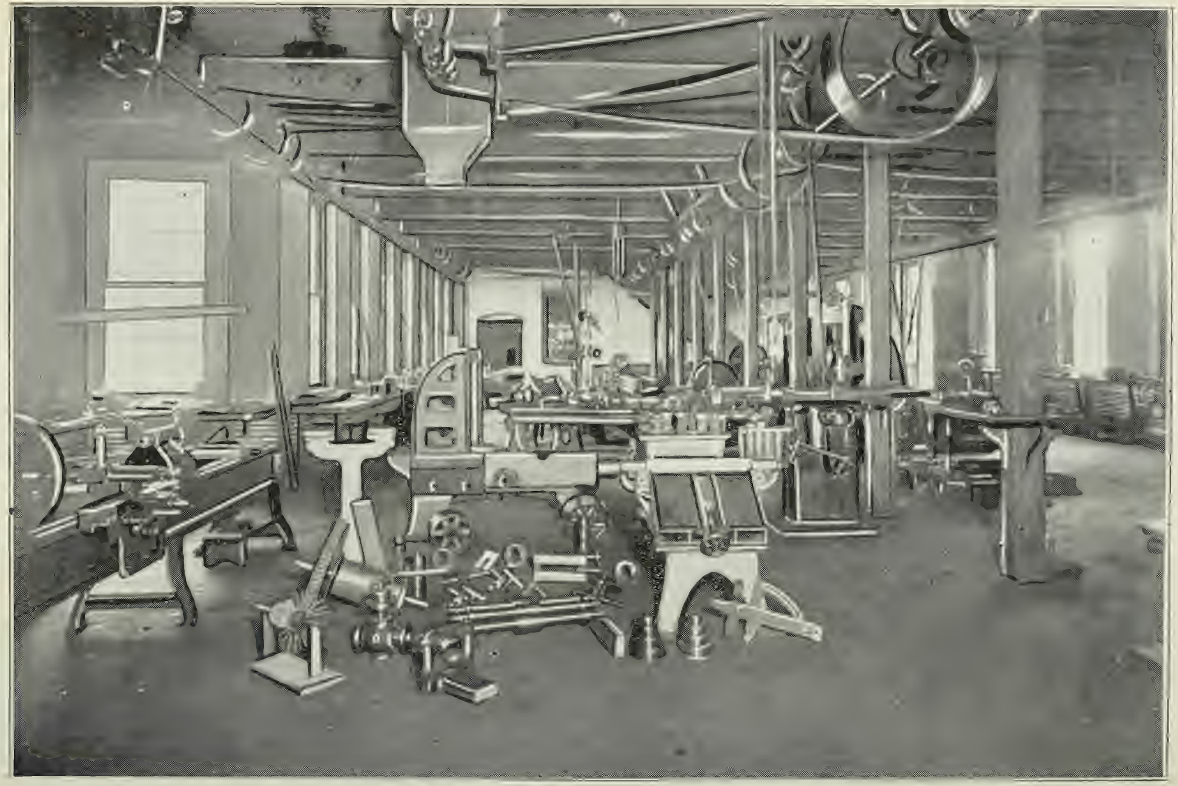
A 12-horse-power transmitting dynamometer for same.

A 24-inch buzz planer.

A power-geared pump.

Ten wood speed lathes.

Several electric generators. Many of these have been made in the past, the largest a 10 K. W. for ourselves.



UNFINISHED MACHINES, ETC., IN PROCESS OF CONSTRUCTION IN MACHINE SHOP.

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DEPARTMENT OF ENGLISH.

The course in English embraces four years. As the school has no separate departments of History and Economics, branches of these departments are included in the English course.

Recognizing that conventional instruction in English is largely theoretical, and consequently is inefficient, the objects of this course are practical.

The aim is to train the student in the best methods of expression, to cultivate in him true literary taste and appreciation, and to give him an adequate knowledge of the history of English language and literature.

The course is supplemented throughout by frequent lectures on the part of the Professor and his associates.

Accessory to the department is a library of some 2,000 volumes, recently acquired.

Apprentice Class.

The class recites four hours a week throughout the school year. The requisites for admission to this class are proficiency in United States History, and a comprehensive knowledge of English Grammar.

During the first and second terms Outlines of Rhetoric is studied. Emphasis is laid upon theme writing, and constant exercise in this fundamental work is required under the careful supervision of the instructors. The Harvard system of teaching Freshman English is employed.

The third term is given to a course in general history.

Frequent declamations are required throughout the year.

Junior Class.

The recitations are as follows: Five hours per week the first term; four hours per week the second, and three hours per week the third term.

The three terms of this class are devoted to an introductory study of English literature. In this connection the student is required to master Rhetorical methods and principles, and thus form for himself a valuable apparatus of investigation and criticism. Parallel reading courses are assigned, upon which written reports and criticisms are required. Essays, and either declamations or debates are required at frequent intervals throughout the year.

Middle Year.

Recitations three hours per week throughout the year.

During the first and second terms, the class studies Economics.

The third term is spent in the study of American Literature. Parallel reading courses are assigned, upon which written reports and criticisms are required.

Frequent essays, with occasional debates, are required throughout the year.

Senior Class.

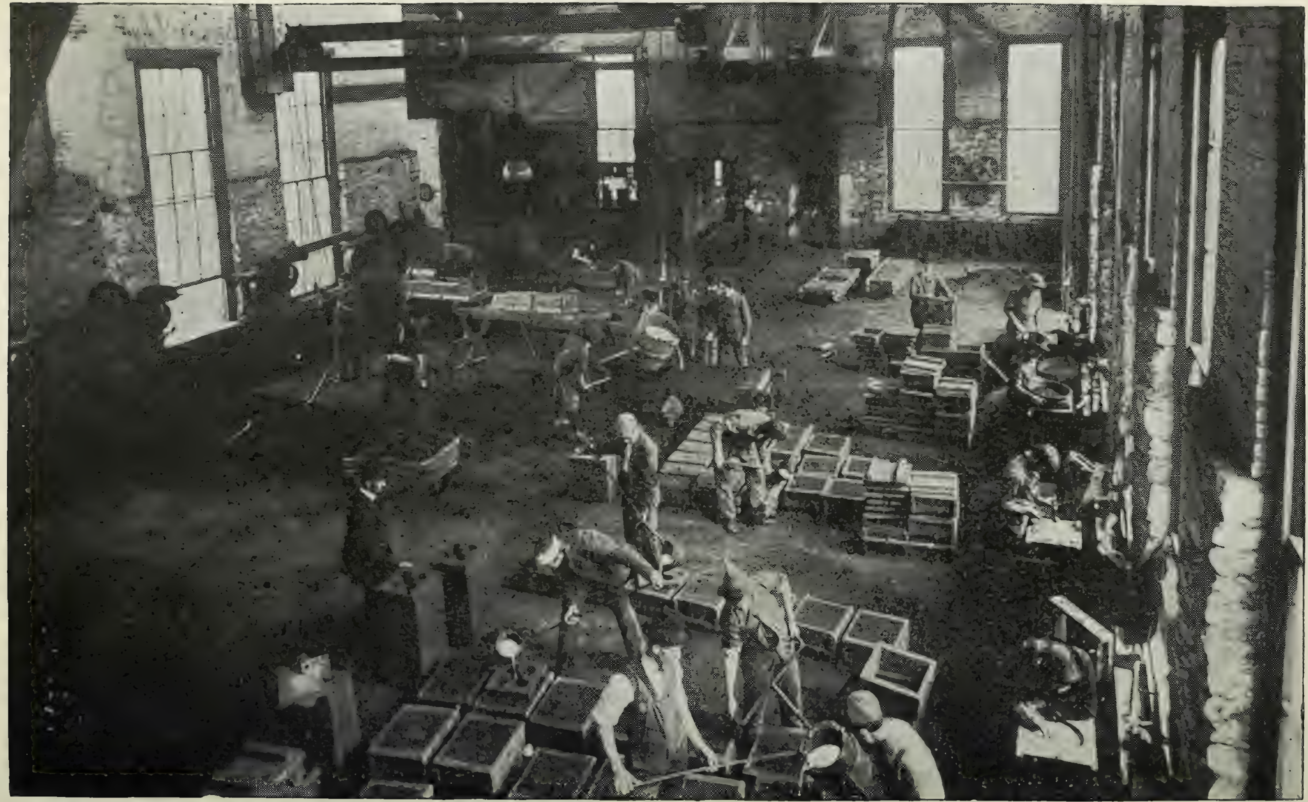
Recitations two hours per week.

The Senior year is devoted to as comprehensive a survey as possible of the historical development of the English language and literature, and to a critical study of Shakespeare, Milton, Tennyson, Robert Browning, and other literary masters, the list of authors being varied from year to year. Essays and debates are required on stated occasions.

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

PHYSICS.

A knowledge of the principles of physics being necessary for the pursuit of any branch of engineering, it is the aim of this department to give a general course in the subject, fitting the stu-



IN THE FOUNDRY.

dent for the specific applications of the science which are made in the other departments. The subject is studied largely from the mathematical standpoint, the laws being stated in a general way, and then the various quantities being represented by symbols and their exact relation shown, as far as the mathematical attainments of the students allow. The instruction is by recitations from a text-book, experimental lectures and laboratory experiments performed by the student himself.

The lecture-room is well fitted for its purpose, being provided with curtains for darkening it when the projection lantern is being used, running water, gas and electricity, both from the school lighting plant and a storage battery of six cells. Among the pieces of apparatus for lecture demonstration might be mentioned a J. B. Colt electric projection lantern, with vertical attachment, a polariscope for the projection of the colors of crystaline plates on a screen, and other accessories; a half horse-power Crocker-Wheeler motor; a hydraulic press; a large air-pump; rotating apparatus with accessories; a gyroscope; a Hero's fountain; a Holtz electric machine; a six-inch spark Ruhmkorff induction-coil; a set of Geissler and Crooke's tubes; several X-Ray tubes; a fluoroscope; a battery of Leyden jars; apparatus for showing the mutual action of electric currents; and the mutual action of a magnet-pole and a current; a microphone; two large parabolic reflectors; a bi-prism; various pieces for demonstrating the laws of reflection and refraction of light; a revolving mirror and monemetric capsule; Koeng's interference apparatus for sound, and several organ pipes.

The laboratory equipment includes the following: a spherometer; a wheel and axle; two torsion pendulums; a Kater's pendulum; several calorimeters; a monometer for the verification of Boyle's law; a mercurial barometer; an aneroid barometer; a boiler for showing the relation of boiling point to pressure; a syren; tuning forks of various pitches; a goniometer; several lenses and mirrors; a spectrometer; a diffraction grating; a Thomson mirror galvanometer; a Siemens mirror galvanometer; a very sensitive Queen D'Arsonval galvanometer; a large coil tangent galvanometer; a dial pattern Wheatstone bridge; a slide wire bridge; several resistance boxes and bridges of various patterns; a copper voltameter; a Carhart-Clark standard cell; a I M. F. standard condenser and discharge key for capacity tests.

The following courses are offered in this department:

1. GENERAL PHYSICS.

The aim of this course is to give a general survey of the field by means of experimental lectures and study of a text-book. Three hours per week during the first year, and four hours per week during the first term of the second year.

Required of all students except Textile Engineers.

2. GENERAL PHYSICS—SHORT COURSE.

This course covers the same ground as course I, except that less time in devoted to the subject. Three hours per week throughout the year.

Required of Textile Engineering Juniors.

3. PHYSICAL LABORATORY.

The aim of this course is to give the student an acquaintance with the methods of physical measurement and the manipulation of apparatus. Each student performs a given series of experiments illustrating the various physical laws, and is required to write reports on them. Three hours per week throughout one year, beginning with the third term.

Required of all students except Textile Engineers.

4. PHYSICAL LABORATORY—ELECTRICAL MEASUREMENTS.

Advanced course for Electrical Engineers. Three hours a week during the third term.

Required of Electrical Engineering Middlers.

IN THE ELECTRICAL LABORATORY.

ELECTRICAL ENGINEERING.

The aim of this department is to give the student such a training that he will be able to enter any part of the field of electrical engineering. No one can make a successful electrical engineer unless he has a considerable knowledge of mechanical engineering; consequently the courses are alike for the first two years, and have many subjects in common throughout.

This department occupies half of the first and second floors of the Electrical Building, recently completed, and a portion of the shop. The dynamo laboratory is at present in the shop, but it will be moved to the new building soon. The present equipment includes a 17 1-2 killowatt 110-volt Triumph direct current generator; a 10-kilowatt 110-volt double current generator, built in the school shops, capable of supplying either direct, two phase or three-phase currents; a 5-kilowatt 110-volt shunt generator, built in the school shops; a 5-horse-power 110-volt Commercial series motor; a 7 1-2-horse-power 110-volt General Electric differential motor; a 9-light Thompson-Houston constant current generator; a 5-kilowatt 220-volt three-phase Ideal alternator; a 5-horse-power 220-volt three-phase General Electric induction motor; two 3-kilowatt transformers arranged for phase transformation; a 10-M. F. adjustable condenser; two "Imperial" telephones; and the necessary instruments of various ranges and types for the complete testing of the preceding machines.

The following courses are offered in this department:

1. DIRECT CURRENT MACHINERY.

A study of the theory, construction, operation and elements of design of direct current apparatus and machinery, most of the time being devoted to dynamos and motors. Two hours per week during the second term, and four hours per week during the third term.

Required of Electrical Engineering Middlers.

2. DESIGN OF DIRECT CURRENT MACHINERY.

A study of the principles of design of direct current machinery. Each student is required to make a complete design of a direct current dynamo or motor. Six hours per week in the drafting-room, first term.

Required of Electrical Engineering Seniors.

3. TESTING OF DIRECT CURRENT MACHINERY.

A study of the methods of testing direct current machinery. In this course application is made of the principles treated of in course 1, the student making commercial tests of various kinds of apparatus. Three hours per week during the first and second terms.

Required of Electrical Engineering Seniors.

4. ALTERNATING CURRENT MACHINERY.

A study of the theory, construction, operation and the elements of design of alternating current machinery. Five hours per week during the second and third terms.

Required of Electrical Engineering Seniors.

5. TESTING OF ALTERNATING CURRENT MACHINERY.

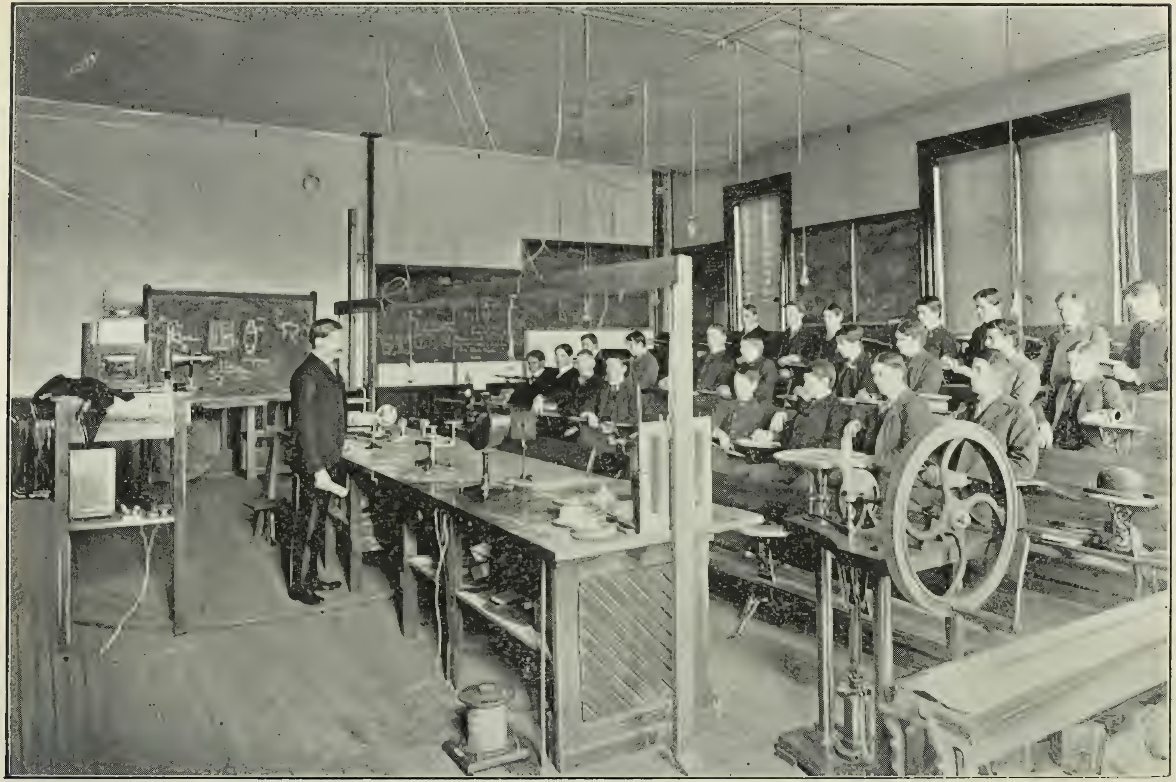
Laboratory course to accompany course 4. Three hours per week during the third term.

Required of Electrical Engineering Seniors.

6. ELECTRICAL MACHINERY—SHORT COURSE.

A study of the elementary theory and operation of electrical machinery. This course is designed to give such a general knowledge of electrical machinery as to enable one to select and operate such machinery with intelligence. Two hours recitation per week, or the equivalent laboratory work during either the second or third term.

Required of all Seniors except Electrical Engineers.



IN THE PHYSICAL LECTURE ROOM.

7. TELEPHONE AND TELEGRAPH.

A study of the various telephone and telegraph systems now in use. Two hours per week during the first term.

Required of Electrical Engineering Seniors.

8. ELECTRO-CHEMISTRY.

A study of the principles of electro-chemistry and their application to the construction and operation of primary and secondary batteries. Two hours per week during the first term.

Required of Electrical Engineering Seniors.

9. ILLUMINATION.

A study of the principles of illumination and of various light sources; particular attention being paid to the subject of photometry. Two hours per week during the second term.

Required of Electrical Engineering Seniors.

10. POWER PLANTS.

A study of the design and operation of plants for the generation, transmission and distribution of power by electricity; particular attention being paid to the question of cost. Five hours per week during the third term.

Required of Electrical Engineering Seniors.

11. THESIS.

The subject for the thesis should be selected at the beginning of the Senior year, so that it may be well in hand by the first of the third term when the experimental work should be commenced.

DEPARTMENT OF CIVIL ENGINEERING.

In this department theory and practice are combined in the best possible manner, the class-room theory being put to immediate practice in the field or drawing-room. The student is thus taught to do his work thoroughly and intelligently, and the misty points are found and cleared away.

In the field, and under the direction of an instructor, types of work are performed and, later, the student is sent to do similar work by himself; all the work is carefully worked out and checked in the computing-room. The problems are those of actual practice, and all work is done thoroughly and accurately, carlessness resulting in students doing the work over during time he would otherwise have to himself.

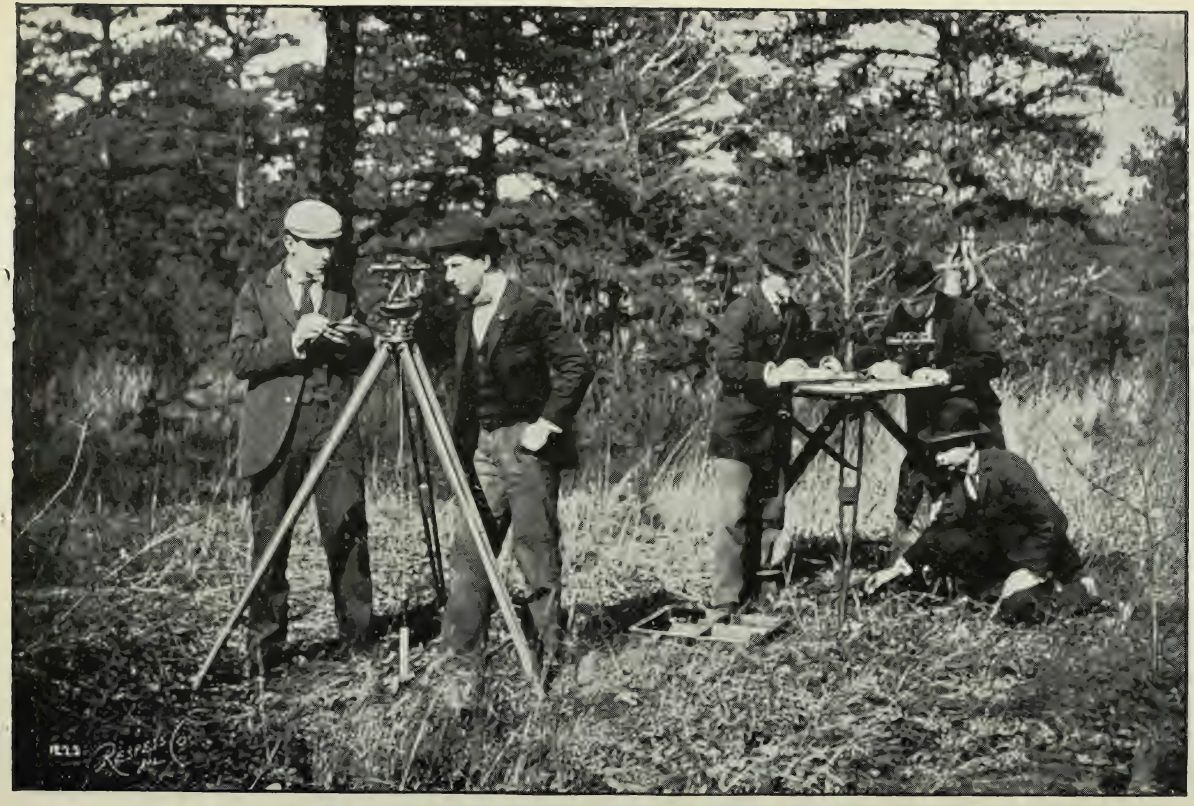
The course in Dynamo Machinery renders the student familiar with the structure and workings of electrical machines, and enables him to select intelligently the machine for the work he has in hand.

The course in Steam-Engine is designed to familiarize the student with types of boilers, engines and pumps, to decide upon the one to be used and to test its efficiency.

In Hydraulics, he is given a thorough training in the principles of the subject and their application to the design of motors and water-wheels.

We have for this work four Y-levels, one engineer's transit, one engineer's transit with Saegmuller solar attachment, one plane-table, with telescopic alidade arranged for stadia, one complete compass, one aneroid barometer, one Thatcher slide rule, one sextant, one planimeter, pedometers, chains, tapes, rods, etc.

A constant effort is made to make the problems and their treatment, both in the field and office, conform to the best modern practice, and thus to make the student valuable to his employer at the earliest possible moment.



SURVEYING. TRANSIT AND PLANE TABLE.

We have some valuable designs of existing structures, and this collection is constantly being added to.

The studies of this department are:

I. *Surveying.*—1. Structure, theory and use of field and office instruments, with practical application of these to surveys, location of meridian, leveling, railroad curves, staking out work, and computation of quantities.

2. The location, construction and maintenance of roads, railroads, street pavements and canals.

3. Topographical and Geodetic Surveying, with the application of plane-table and stadia.

II. *Mechanics.*—1. Elementary mechanics, theoretical and applied.

2. Analytic Mechanics.

3. Hydraulics. The principles of statics and dynamics of fluids, the flow of water through conduits, pipes, weirs, and orifices, and the determination of horse-power and design of hydraulic motors.

III. *Graphical Static.*—1. Mechanical drawing.

2. Descriptive geometry and shades, shadows and perspective, together with stereotomy, and their applications to engineering problems.

3. Graphic solution of mechanical problems.

IV. *Engineering.*—1. Masonry structures; foundations for masonry, designing retaining walls, arches, dams, etc.

2. Framed structures. Designing roof-trusses, bridges, buildings, water-towers, tanks, etc.; special attention is paid to iron and steel in construction.

3. Strength of materials and materials of engineering.

4. Municipal engineering, water-works, sewerage, drainage, streets and pavements.

5. Steam engine and boilers.

6. Electrical machines.

TEXTILE DEPARTMENT.

THE A. FRENCH TEXTILE SCHOOL.

This Department offers unexcelled advantages to the young man who intends to enter the textile industry. We believe that the student, on graduating, should have a sound foundation in engineering subjects as well as in the branches relating directly to the textile trade.

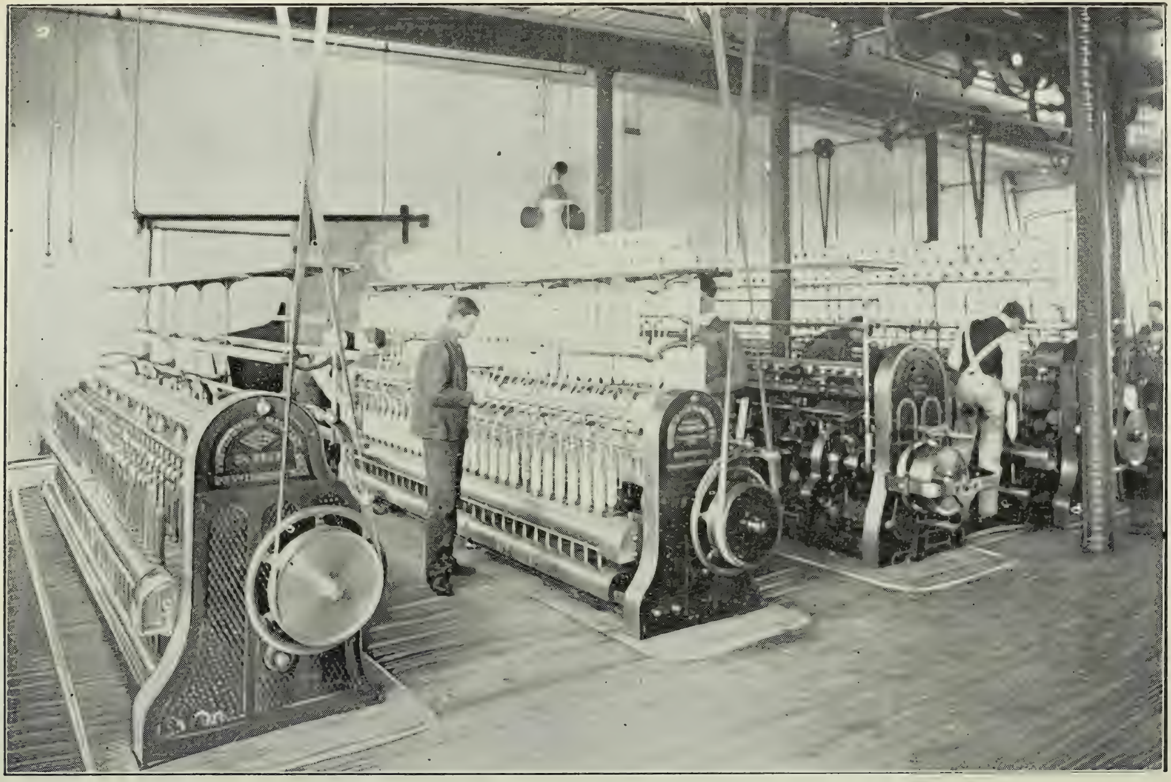
We therefore include, besides the usual subjects given in textile schools, such as carding, spinning, weaving, designing, and dyeing, extensive courses in mathematics, English, chemistry, physics, mechanism, mechanics, drawing, strength of materials, steam-engine, electrical work, mill construction, and shop work.

The course not only covers all the theoretical sides of the different subjects, but is extremely practical. For example, with a few exceptions where very fine or fancy yarns are required, we make all the yarn used in the weave-room. This yarn and the cloth produced must be up to mill standards, as it is placed on the market and sold. We believe that no other textile school is run on such a practical basis.

BUILDING AND EQUIPMENT.

The Textile Building is a splendid example of architectural skill in modern mill construction. It is equipped with complete systems of heating, ventilating, electric lighting, humidifiers, automatic sprinklers, and, in fact, all apparatus and appliances found in the modern mill.

Great care has been exercised in selecting the equipment, which is the most complete in the world for education in the different branches of cotton manufacture. Several makes of each kind of machine have been installed, thus enabling the student to become familiar with most of the prominent makes now in use.



PRACTICE ON THE FLY FRAMES.

The equipment consist of:—

The Sturtevant system of heating and ventilating, made by B. F. Sturtevant & Co., Boston, Mass.

Complete equipment of automatic fire-sprinklers, from the General Fire Entinguisher Co., Providence, R. I.

System of humidifiers, from the American Moistening Co., Boston, Mass.

Entire equipment of stafting, hangers, and pulleys, from Jones & Laughlin's, Pittsburg, Pa.

CARDING DEPARTMENT.

Ginning.

One Winship Cotton Gin Feeder.
One Winship 60-saw Cotton Gin.
One Winship Condenser.

Pickers.

One Kitson Automatic Feeder.
One Kitson Single Beater Combination Breaker and Finisher Lapper, with Clarke & Perham's evener.
One Atherton 40″ Single Beater Finisher Picker complete.
One lap scale.

Cards.

One Saco-Pettee 40″ Revolving Flat Card.
One Whitin 40″ Revolving Flat Card.
One Howard & Bullough 40″ Revolving Flat Card.
One Lowell 40″ Revolving Flat Card.
Grinding, Stripping and Burnishing Rolls.
Complete set carders' tools.

Combing.

One Dobson & Barlow Silver Lap Machine.
One Whitin Silver Lap Machine.
One Whitin Ribbon Lap Machine.
One Whitin Combing Machine.
One Dobson & Barlow Combing Machine.
One percentage scale for comber.

Railway.

One Saco-Pettee Railway Head, with evening motion and metallic rolls.

Drawing.

One Saco-Pettee Drawing Frame, 4 deliveries, and metallic rolls.

One Whitin Drawing Frame, 4 deliveries, and metallic rolls.

One sliver scale.

Fly Frames.

One Woonsocket Machine and Press Co.'s Slubber, 32 spindles, with Daly's improved differential motion.

One Woonsocket Machine and press Co.'s Intermediate, 42 spindles, with Daly's improved differential motion.

One Saco-Pettee Machine Co.'s Intermediate, 44 spindles.

One Saco-Pettee Machine Co.'s Fine Roving Frame, 72 spindles.

One Woonsocket Machine and Press Co.'s Fine Roving Frame, 64 spindles, with Daly's improved differential motion.

One Providence Machine Co.'s Fine Roving Frame, 64 spindles.

One Saco-Pettee Machine Co.'s Jack Frame, 96 spindles.

One Roving Reel and Scale.

Two Laminar Fibre Co.'s Roving Trucks.

SPINNING DEPARTMENT.

Ring Spinning.

One Fales and Jenks combined warp and filling Frame, 80 spindles.

One Fales & Jenks filling frame, 80 spindles.

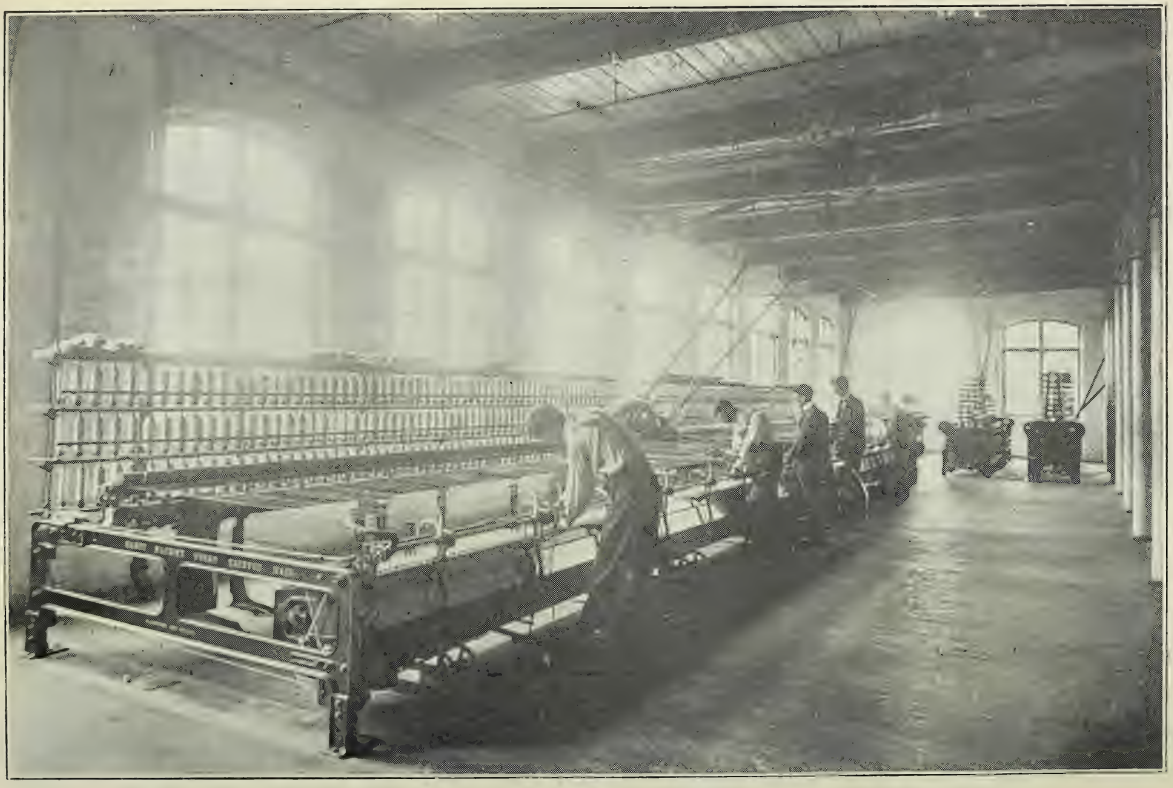
One Whitin combined warp and filling frames, 64 spindles.

One Saco-Pettee Machine Co.'s combined warp and filling frame, 160 spindles.

One Howard & Bullough combined warp and filling frame, 160 spindles.

Mule Spinning.

One Mason Spinning Mule, 360 spindles, 1 1-2″ gauge.



PRACTICE ON THE SPINNING MULE. LENGTH OF MACHINE 54 FEET.

THE
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One Yarn Balance and Reel.

One Yarn Testing Machine for Stretch and Strength.

Twisting.

One Draper Twister, 128 spindles.

One Draper Twister, 32 Spindles.

One Fales and Jenks Twister, combination wet and dry, 60 spindles.

One Howard and Bullough Twister, 128 spindles.

One Twist Counter.

One Weeks banding machine.

Spooling.

One Easton and Bernham Spooler, 24 spindles.

One Draper Spooler, 40 spindles.

One Whitin Spooler, 60 spindles.

Two Barber & Colman Knotters.

Winding and Reeling.

Two Universal Winding Machines, 7 spindles.

One Fairmount Bobbin Winder, 12 spindles.

One D. A. Tompkins Co.'s adjustable reel, 50 spindles.

WEAVING DEPARTMENT.

Warping.

One Entwistle Warping Machine, with creel.

One Entwistle Beaming Machine, with tension drums.

One Draper Warper and creel.

Slashing.

One Lowell Cylinder Slasher, 6 beam creel.

One Lowell Size Kettle.

One Lowell Size Pump.

Hand Looms.

Hand Weaving Room, with thorough equipment of hand bobbin winders, warping pins, hecks, drawing-in frames; and 30 hand looms, with 30 harness dobbies, 4 shuttles, 4 beams, let-off and take-up motion, etc.

Power Looms.

One 36″ Colvin Plain Loom.

One Northrop-Draper Print Cloth Automatic Loom.

One Northrop-Draper 5 Harness Automatic Loom.

One Lewiston Machine Co.'s Pillow-case Tubing Loom, with attachment for weaving plain goods.

One Lewiston Machine Co.'s 36″ Plain Loom.

One Whitin Plain Loom.

One Mason Plain Loom.

One Lowell Print Cloth Loom.

2 Kilburne-Lincoln Plain Looms.

One Mutual Machine Co.'s Turkish Towel Loom.

One Kilburn & Lincoln Gingham loom, 2x2 box, and 2, 3 and 4 leaf under cams.

One Mason Dobby Dress Goods Loom, single box, and 20 harness.

One Mason 32″ Gingham Loom, 4x1 box, and 2, 3 and 4 leaf under cams.

One Crompton Dobby Dress Goods Loom, 4x1 box, and 16 harness.

One Crompton-Gingham Loom, 6x1 box, and 2, 3 and 4 leaf under cams.

One Knowles Cotton Dobby Loom, single shuttle and 20 harness.

One Knowles Leno Loom, 4x1 box, multiplier, easing rods, 25 harness, double cylinder.

One Crompton Dobby Loom, 4x1 box, multiplier, 25 harness, double cylinder.

One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, left hand.

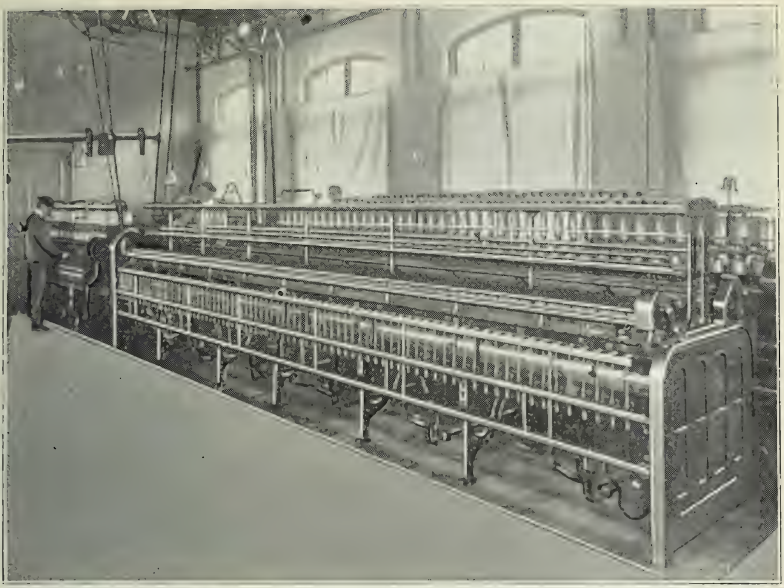
One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, right hand.

One fairmount Dobby Loom, 4x1 box, 16 harness.

One Fairmount "Ingraham" Harness Motion and Loom, 4x1 box, multiplier, 20 harness.

One Crompton-Knowles Upholstery Loom, with 600 hook, double lift, single cylinder, Jacquard machine.

One Crompton-Knowles Upholstery Loom, with 400 hook, single lift, single cylinder, Jacquard machine.



PRACTICE IN RING SPINNING.

BEAM WARPERS.

THE
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One Kilburn and Lincoln Dress Goods Loom, with 400 hook, rise and fall, rotary cylinder, Schaum & Uhlinger, Jacquard machine.

One 11-4 Lewiston Quilt Loom, 2x1 box, with 1,200 hook, double lift, single cylinder, Halton Jacquard machine.

One Crompton Damask Loom, 4x1 box, with 600 hook, double lift, double cylinder, Halton Jacquard machine.

One French Index Royle's Power Card Cutter.

One French Index Schaum & Uhlinger card cutter.

One Royle's card lacing frame.

Finishing.

One Elliott and Hall 40″ Cloth Folder.

One Windle Doubling and Winding Machine, with Measuring attachment.

One Curtis & Marble Brushing and Shearing Machine.

One Parks & Woolson French Napper.

One American Napping Machine Co.'s French Napper.

KNITTING DEPARTMENT.

One Branson 7-8 automatic knitting machine.

One Scott & Williams 7-8 automatic seamless hosiery machine.

One Scott & Williams single-lever automatic shirt body machine.

One Scott & Williams tucking sleever.

One Scott & Williams automatic welter.

Four 7-8 automatic seamless cylinders.

One transfer cup.

One Campbell & Clute single knitting-table.

One Campbell & Clute turning off machine.

2,000 extra needles.

Hosiery forms, finishing boards, etc.

Owing to the lack of floor space we have been unable to start our Knitting Department, but we hope to do so early in the future with increased equipments.

DYEING DEPARTMENT.

Dyeing.

One Dry Room.

Eight Dye Vats, 2x3 feet, regulation depth.

One Bleaching Box and Souring Vat.

One Buttersworth Steam Cylinder, for steaming yarns and cloth.

One complete set Thos. Phillips Copper Measures.

One Thos. Phillips Patcher Steamer.

One Granger Jigg Dyeing Machine.

One Schaum and Uhlinger Self-balancing Engine-driven Hydro-Extractor.

One Raw-stock Dyeing Machine.

Six Yarn Dyeing Machines.

One Ventilating Wheel.

The Dyeing Laboratory is fitted up complete for experimental dyeing, analysis, etc. Students have access to our splendid collection of dyestuffs which is, we believe, the most complete in the United States.

Fire Protection.

One Fales and Jenks Iron Rotary Fire Pump.

Complete system of automatic fire-sprinklers.

Fire pails.

Humidifiers.

Complete system of "Drosophore" and "Vortex" Humidifiers and Pump, with connections, donated by the American Moistening Co.

Power.

One Hundred H. P. Boiler, donated by Thayer & Co.

One 60-H. P. Corliss Engine, from the Lane & Bodley Co.

Shafting, Hangers and Pulleys, donated by Jones & Laughlin.

IN THE DYEING LABORATORY.

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DEPARTMENT OF TEXTILE DESIGN.

FABRIC STRUCTURE.

The study of the above subject includes fundamental principles of the structure of fabrics; classification of fabrics; "balance of cloth" necessary to give the maximum of wearing qualities and best general appearance; economical construction; texture calculations; for "solid" weaves; for "combination" weaves; take-up in weaving; its relation to the different combinations of textures and weaves; examples of weaves which take up warp and filling at different rates; influence of twists on the appearance of the fabric; influence of the texture on the appearance of the weave in the fabric; examples of fabrics in which it is more suitable to use one class of weaves than others; influence of twists on textures; proper textures for single cloth; finding the diameter of yarns; calculating textures by diameters and interlacings.

Proper textures for double cloth, triple cloth; textures for fabrics in which the layout of warp and filling are unequal; changing textures from one weave to another; methods of increasing or decreasing the weight of fabrics without affecting its general appearance; system of adding an extra warp or an extra filling; stitching the same; stitching fabrics in which the layout of warp and filling is different. Stitching double cloths, triple or more ply cloths.

Method of stitching a silk stripe or plaid on a plain cotton fabric.

Stitching fabrics after a motive for the purpose of ornamentation. The uses of stuffer fillings and warp and the manner of their introduction into the fabric.

FABRIC DESIGN.

Includes the formation of fabrics by interlacing threads introduced at right angles; method of representing the interlacing on "square" or "point" paper; the terms "warp," "filling," "raiser," "sinker," "weave," etc., explained; planning the weave; the three foundation weaves; the plain or cotton weave; producing fancy effects on a plain weave foundation; color effects; representing the same on point paper; derivative weaves; plain and fancy basket weaves; warp, filling and oblique ribs; planning drawing in drafts and chain drafts on paper; reducing weaves to their lowest number of harness.

Twills.—Common twills; representing color effects on twilled grounds; derivative weaves; broken twills; pointed twills; fancy pointed twills; plain and fancy skip twills; steep and reclining twills; entwinning twills; curved twills; cork-screw twills; fancy twills; double twill effects; shaded twills; fancy ground weaves on twill foundation; fancy effect in twill combinations.

Satins.—Warp and filling effect; double satin; broken satin; satins broken after motives; ground weaves on satin foundation; fancy effects in broken satins; satin granite weaves; fancy granites; satin shading.

The above weaves enable the student to know the origin and application of all the simpler weaves used in the designing of all classes of textile fabrics. The following more especially in cotton goods:

Spot and stripe weaving; plain fancies and brilliants; fancy satin stripes on plain ground; other combinations of the plain weave with satins and twills; the various imitations of leno or gauze weaving; satin stripes; fancy ground weaves, derived from twills by combination; honey-comb weaves; madras combinations; floating warp for same; bedford cords and their combinations; huck and "Turkish" toweling; fabrics consisting of one or more systems of warp interlacing with one or more systems of filling; double and triple cloths as applied to very heavy cotton fabrics; stuffer warps and fillings; double plains; figured double and triple plains; figured dress-goods using an extra warp or filling for ornamentation; double-faced or figured reversible fabrics; seamless bags; method of stitching in the sides and bottoms of bags; plain piqués or "welts;" fancy piqués; piqués as applied to Marseilles quiltings; combinations of single and double plains in dress-goods; other "novelty" weaves; methods of stitching a silk stripe or plaid on a cotton fabric; pile fabrics cut

RECITATION IN CARDING.

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and uncut; cotton specialties; swivel spots; lappet designing; principles of leno or gauze weaving; doups and easing-rod; standard, skeleton and ground harness; functions of each; combinations of plain weave and gauze effects; plain and fancy gauze in the same fabric.

FABRIC ANALYSIS.

Includes yarn calculations, leading to and preparatory to analysis; standard of cotton yarns; system of numbering; obtaining the "count"; counts of single and doubled yarns; grading two, three, four or more ply yarns; standard woolen, worsted, silk and linen yarns; determining the counts of these yarns in the cotton system of numbering; weight, count and yard calculations; estimating quantities and cost of the minor threads in making fancy twists; contraction in twisting equal or unequal minor threads; obtaining the resultant counts and cost of the same; counts of minor threads necessary to produce a desired count; estimating the cost of woven fabrics; drafting and chain building; finding apparent cost per yard finished; reed, heddle and harness calculations.

The instruction in the Middle and Senior year is carried along the above lines, the object being to make the student familiar with the rules and best systems of cloth analysis. He is furnished with samples of all the grades of cotton fabrics and his analysis of the same must be complete and thorough in every respect.

On the completion of this year's work the student should be able to analyze and reproduce any sample of cotton goods submitted to him, given the necessary machines and materials.

THE JAQUARD MACHINE.

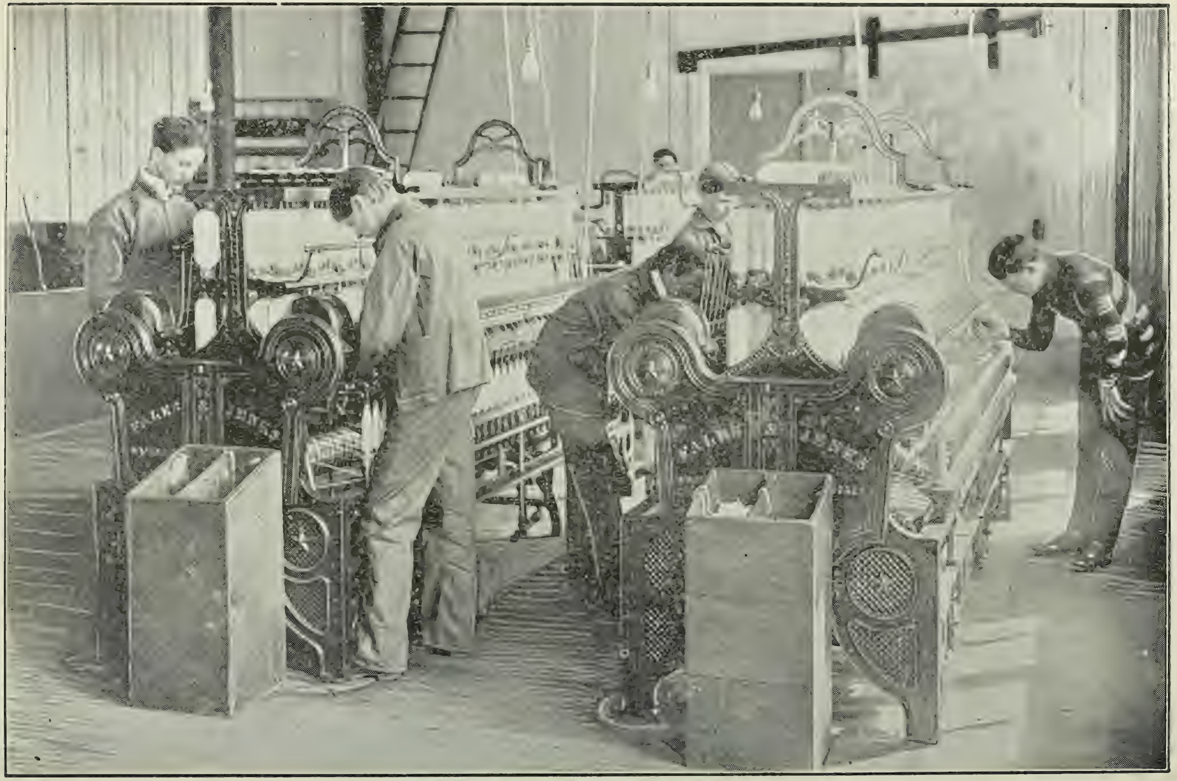
The instruction relating to this machine includes its history and development; relation to harness machines; its method of producing ornaments; analysis and description of its principal parts.

Locating the number one needle on the machine; French index; fine index; analysis and drawings of the vital parts of the single lift, single cylinder; raise and drop; double lift, single cylinder; double machines, showing their internal mechanism; the tie-up; English system—front cylinder, back cylinder; French system—left cylinder, right cylinder; description and uses of the leashes, couplings, mail, lingo, etc.; the comber or "compart" board; sectional; solid; threading from the front and from the back.

Tracing effects of "raisers" and "sinkers" on the design through pattern-cards and machine to the fabric; drawings of straight-through, point or center, and sectional tie-ups; drawings of the various forms, combinations and variations of the straight-through and point tie-ups; journals and journal tie-ups; tie-ups for gauze weaving; slackening mechanisms and other motions necessary in doup work; running tie-ups in connection with harness-work; tie-up calculations.

JACQUARD DESIGNING.

Includes the methods of producing ornament by mechanical means; laying out and managing designs for economical production; original sketches in fabric size; distributing forms on original sketches so as to avoid streaks, and produce symmetrical effects; "all-over" effects, "stripe" effects, "checker-board" and "diagonal" effects; selection of proper designing paper in regard to the texture to be employed; determining the number of hooks to be used, number of ends in a repeat and the number of repeats; enlarging and reducing sketches by the "square" system to the area to be occupied on the designing paper; transferring the pattern to design paper; painting in the sketch; stitching warp and filling floats by means of satin, twill and random stitches; indicating the ground weave; locating the number one, its influence on the direction of twills by its position on the comber-board; shading forms by satins and by twills; making complete designs for straight-through and center point tie-ups as such, and in their various combinations; ruling paper for card stamping; card stampers' instruction; stamping so as to make the load in weaving as light as possible; fabrics woven face up; fabrics woven face down; cutting and lacing cards; analysis and reproduction of Jacquard patterns; two or more ply Jacquard



PRACTICE IN RING SPINNING.

cloths; method of representing the various warps and fillings on design paper; color in Jacquard design; card stamping on reduced textures; complete designs for quilts, spreads, fancy table coverings, Damask and other turkey reds, dress-goods, vestings, curtains, toweling, lap-robes, hangings, upholstery, etc.

DEPARTMENT OF CARDING AND SPINNING.

CARDING.

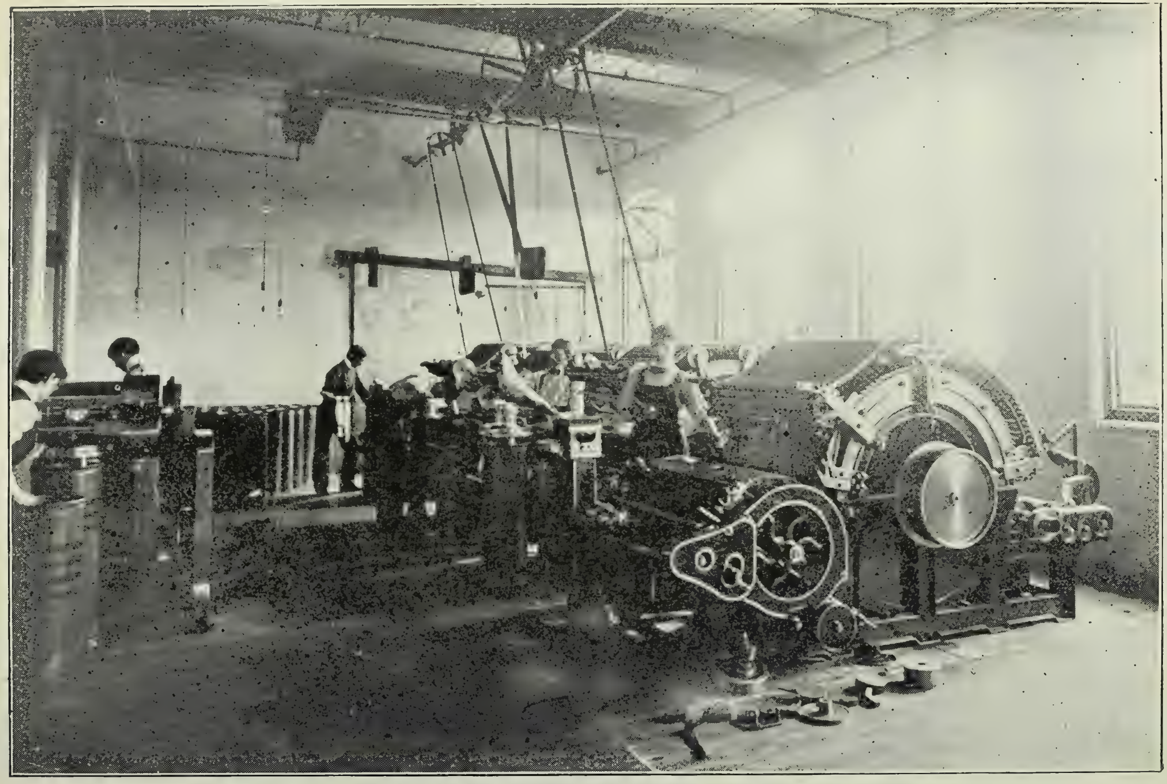
The study of the cotton fibre, including botanical classification of cottons; location of the more important cotton-producing districts; primary species peculiar to each; Egyptian, Brazilian, Peruvian, Arabian, Indian and other cottons; commercial names and comparative values; spinning properties and suitability for the different yarns; American cottons, Sea Island, Orleans, Uplands; commercial grading and classification; the chemical and physical properties of cotton.

Ginning.—History and development of the processes now in use; the roller-gin as applied to the long-staple cottons; its construction and principle of extracting the seed; the rollers, beater, knives; feeding mechanism; proper speeds; setting the parts; their action on the fiber; merits of the roller-gin; the saw gin; its construction and principle of extracting the seed; pneumatic conveyors used in connection; various feeding mechanisms; the apron, rollers and guard; setting, speeding and operating the parts; action of the saws, grate, brush and condensers; different systems of packing the bale; square bale; cylindrical bales; compressing; commercial handling; buying cottons; buying in lots and by grade; advantage of the latter method; points to be considered; detection of moisture and other impurities; methods of handling and drying out damp cotton; selection of grades most suitable for various yarns.

Mixing.—Its object, necessity of; merits of the different systems employed in laying out mixes; proper method of building and pulling down mixes; blending stocks; proportioning grades; examination of lengths and diameters of the fibres; color, cost, waste and production considered; trial mixes; records of percentages of waste; comparative tests for strength and for economical production; spinning qualities considered; the bale breaker, its action, capacity, cost and construction; mixing calculations; pneumatic conveyors; their construction and use; necessity of airing and aging cotton before working; precautions against fires; automatic fire extinguishers.

The Picker Room.—Arrangement of pickers and dust trunks; forms of dust trunks; automatic feeds; mechanisms for regulating the feed; production and cost; the pickers; breaker; intermediate; finisher; the cost, capacity and operation of each; their action and method of opening and cleansing the cotton; analysis and description of their working parts; setting and speeding; air currents; dust trunks; feed rolls; beaters; girds and bars; dust cages; method of forming the laps; compression rolls; winding mechanisms; automatic measuring and stop motions; beaters; beater speeds and bearings; bar beaters; frail beaters; porcupine beaters; evening motions; the piano feed; its method of evening the feed; construction and principle of operation; other evening motions; lap changes and calculations; miscellaneous instruction; general practice on the machines.

Carding.—Its history, growth and development; the principle of carding; its object and necessity; types of carding engines, roller cards; stationary top flat cards; revolving top flat cards; the production, cost, construction and merits of each of the above systems; leading methods of setting the flats and rollers; draughts and change gears; percentages of waste; calculating productions; stripping motions and appliances; turning up and clothing cylinders; clothing flats; card grinding; frame, traverse, roll and flexible strickle; grinding flats, cylinders, workers and strippers; needle, diamond, plough and hooked points on card wire; clothing flats and cylinders; carding both white and dyed stock; lap machines and combs; their action and operation explained; railway heads; systems of drawing with and without railway heads; their combination with section carding; independ-



PRACTICE ON THE FOUR CARDS.

ent heads; chain, screw and other evening motions; their construction and use; draught rolls; leather top rolls; metallic rolls; draught calculations and change gears; stop motions; the coiler; its construction and use; drawing and weighting; leather rolls; metallic rolls; stop motions; frame; production and cost of the machines; the one-frame, two-frame and three-frame systems; the rolls; their setting, speeding and weighting; leather rolls, metallic rolls; stop motions; their mechanical principles; suitable draughts for the various slivers; calculating draughts and draught-change gears; productions of the drawing frame; practice on the machines; the fly frames; slubber, intermediate, roving and jack frames; the principles involved and the construction of the modern machines; their history and development; their mechanisms explained; drawings of their vital parts; the draught rolls; their setting and use; building the bobbin; the flyer leading; the bobbin leading; the builder rail; the differential motion; kinds; its action; drawings of, analyzed and described; the tension and lay change gears; draught and twist changes on slubbers; intermediates, roving and jack frames; calculating the same; productions; proper speeds; setting up and operating the various machines.

SPINNING.

Ring spinning; its history; construction of the modern spinning frame; spindles; kinds in general use; spindle speeds; the theory of spinning; rings; travelers; sizes suitable for different counts; builder motions; their construction; warp and "filling" motions; cams used; traverse; traverse rail; the draught rolls; covering solid and shell rollers; setting the rolls to suit the length of staple; calculation in draughts and draught-change gears; proper draughts and speeds for different counts; twists; soft, medium and hard twists; hosiery and doubling twists; standard twists; change twist gear; draught and twist constants; cap and flyer spinning; principles explained; their disadvantages; cotton yarn measure; changing from one count to another; hank roving and draughts; twists; rules for obtaining the contraction; increasing production economically; ring twisters; wet and dry;

reeling; standard skeins; mule spinning; its history and development; self-operating and self-acting mules; the mule head stock; analysis and description of its parts; the sequence of movements; timing the same; speeds of the parts; scroll shaft; back shaft; counter faller shaft; cam shaft; the spindles; method of driving the same; the construction and operation of the carriage; the fallers; building bobbins and cops; the quadrant; its functions; the rolls; draughts; calculations; draughts and change gears; miscellaneous calculations; drawings of the vital parts of the head stock; traveling scavengers; rope and band making; calculations necessary to their production; preparation of yarns for the market; spooling, winding, reeling and bunching yarns; packing, baling and boxing for transportation.

The instruction in carding and spinning consists of illustrated lectures, recitations from technical text-books, and demonstrations, in addition to the large amount of practical work required in operating, taking apart, erecting, repairing, and caring for the several machines.

The student will be drilled thoroughly in all the calculations pertaining to carding and spinning.

Especial attention is paid to the grinding and setting of the cards, and to the manipulation of both white and colored stocks.

A stated amount of warp, filling and twist-yarns is required to be produced by each student, he making all necessary calculations and performing all the operations on the machines under the immediate direction of the instructor in charge.

DEPARTMENT OF WEAVING.

The instruction in this department includes: Warpers; types of warpers; their construction; mechanical and electrical stop motions; electrical indicators; long and short chain warpers; loop forming mechanisms; long chain quillers; their use; section warping; pin warping; splitting in pins; proper tensions; building pin warps; beam warping; beamers and creels; the single-end electrical stop motion and indicator; mechanical stop motions; measuring devices; warp and warp yarn calculations; slashing; its object and effect in weaving; slashing warps; slashers; the steam cylinder slasher; advantages and disadvantages of this system; drying surface of the cylinders; increasing production by the wind; hot air slashers; their construction; arranging beams on the creel; the size vat; heating the same; immersion and squeeze rolls; coverings for the rolls; the separator rods; leases; winding mechanism and variable speeds; measuring and cut marking devices; size kettles; receipts for sizing compounds; mixing and cooking sizes; nature of yarns considered in sizing; drawing-in, tying-in and twisting-in warps; the care, cost and construction of loom harness; drawing cross and fancy draws; harness and heddle calculations; reeding; American and English systems of numbering reeds; selection and care of reeds; reeding in plain and fancy patterns; reed calculations; looming warps history and development of weaving mechanisms; hand looms; power looms; plain weaving; shedding, picking, lay, let-off and take-up motions; methods of forming the "shed"; the cam and cam and scroll looms; methods of strapping-up, leveling and adjusting the harness; picking motions; principles of their construction; the lay or batten motion; let-off motions; friction and mechanical; take-up motions; positive and conditional; change gears; pick constants; warps stop motions; filling stop motions; protectors; magazine looms; their construction; changing plain looms to weave fancy cotton fabrics; gingham looms; box motions; simple and compound levers for actuating the boxes; box chains; their planning, building, and manner of controlling the boxes; multipliers and multiplier chains; circular boxes; witches, dobbies and "head motions;" open and close shed head motions; single and double cylinder; single and double acting dobbies; chain building for the same; special looms for such fabrics as leno, lappet, bags, towels, etc.; doup selvages; side and center; fringe weaving explained; lectures and practice in loom fixing; lining the loom parts; shuttle troubles and their remedies; filling cutting; the use, care and building of box chains; repeaters and multipliers; boxes controlled by the Jacquard machine; putting in pickers; picker sticks and connections; picker motion; their mechanical construction explained; cam and cone; alternating pick and sliding pick motions; warp stop motion; filling stop motions; knock-off lever, shipper and fork; protector; temples; let-off and take-up motions; Northrop looms; analysis of the filling changing mechanism; proper loom speeds; increasing the production of looms; miscellaneous weaving calculations; finishing; inspection of cloth; detecting and marking imperfections; burling; mending; trimming; singeing and brushing machines; operation and care of the same; emery rolls; sand rolls; wire nappers; washing, tentering and drying machines; folding, doubling and board rolling; methods of numbering, labeling, etc.; stamping and pressing; boxing and bale-packing.

Instruction on weaving, in all its branches, will be given by means of lectures, recitations, demonstrations, and practice on the splendid equipment of looms.

DONATIONS.

We acknowledge, with thanks, the following donations received since the issue of our last catalogue:

A. T. Atherton Machine Co., Pawtucket, R. I.: Gears for their finisher picker.

Barber & Colman: Two Barber Knotters.

The Draper Co., Hopedale, Mass.; One Weeks Banding Machine, one Twister and freight on same, several lots of shuttles, temples and wrenches.

Eagle & Phenix Mills, Columbus, Ga.; Eighty pounds of bleached and colored yarns.

Emmons Loom Harness Co., Lawrence, Mass.: Ten sets of harnesses, ten reeds.

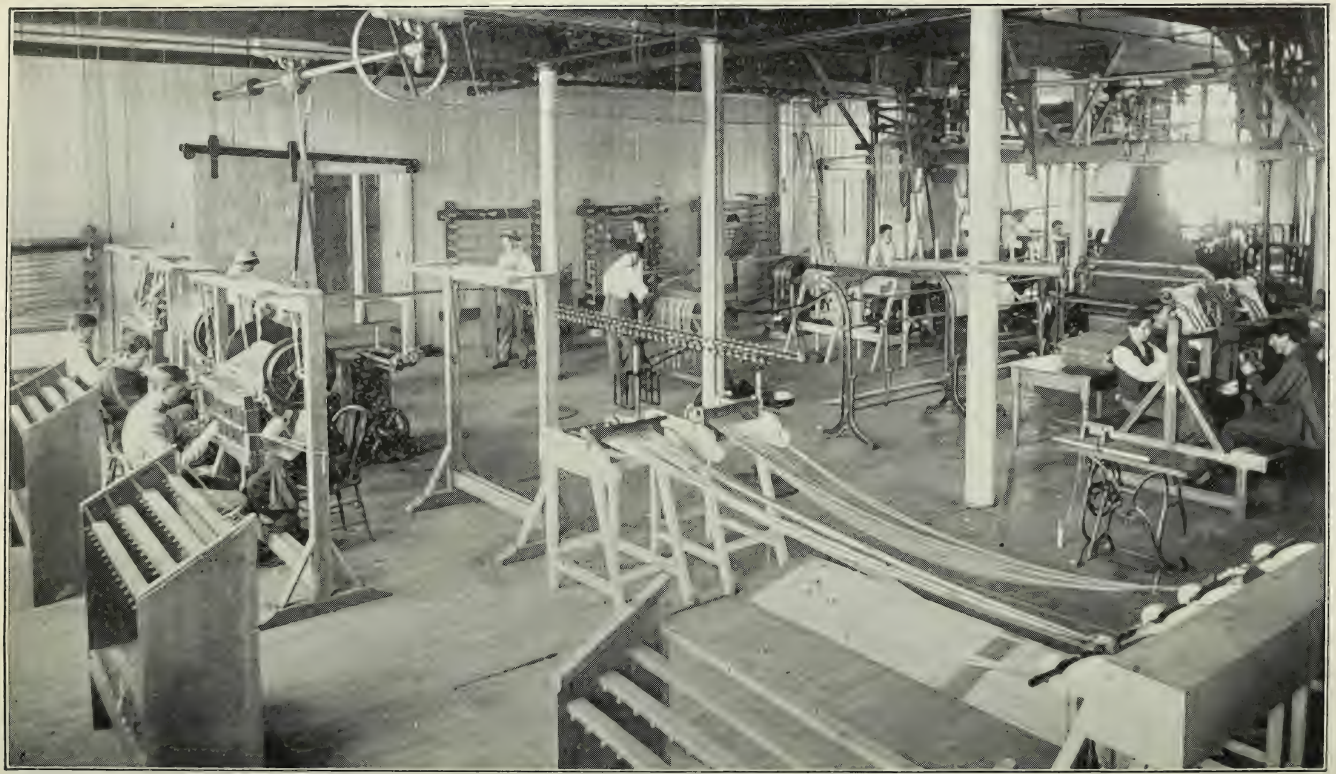
T. C. Entwistle Co., Lowell, Mass.: One spaced roll for Beamer.

American Machine Co., Pawtucket, R. I.: One set of brass bearings for card grinders, sixteen change gears for spinning frame.

Kilburne-Lincoln & Co., Fall River, Mass.: One plain loom.

Laminar Fibre Co., North Cambridge, Mass.: Two Roving Trucks.

Mutual Machine Co., Philadelphia, Pa.: One Turkish Towel loom.



VIEW IN WEAVE ROOM.

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Newnan Cotton Mills, Newnan, Ga.: Twenty-five pounds colored roving.

Riverside Mfg. Co., Anderson, S. C.: Two hundred pounds warps.

Southern Belting Co., Atlanta, Ga.: Fifty dollars worth of belting.

Steel Heddle Mfg. Co., Philadelphia, Pa.: One lot of heddles.

D. A. Tompkins, Charlotte, N. C.: One hundred and fifty dollars cash.

TEXTILE MECHANICS AMD MILL ENGINEERING.

Besides understanding the different processes of cotton manufacture, a mill superintendent is called upon to manage the motive power, operation and general economy, of an entire plant. To this end a special course has been provided in the department of Mechanical Engineering.

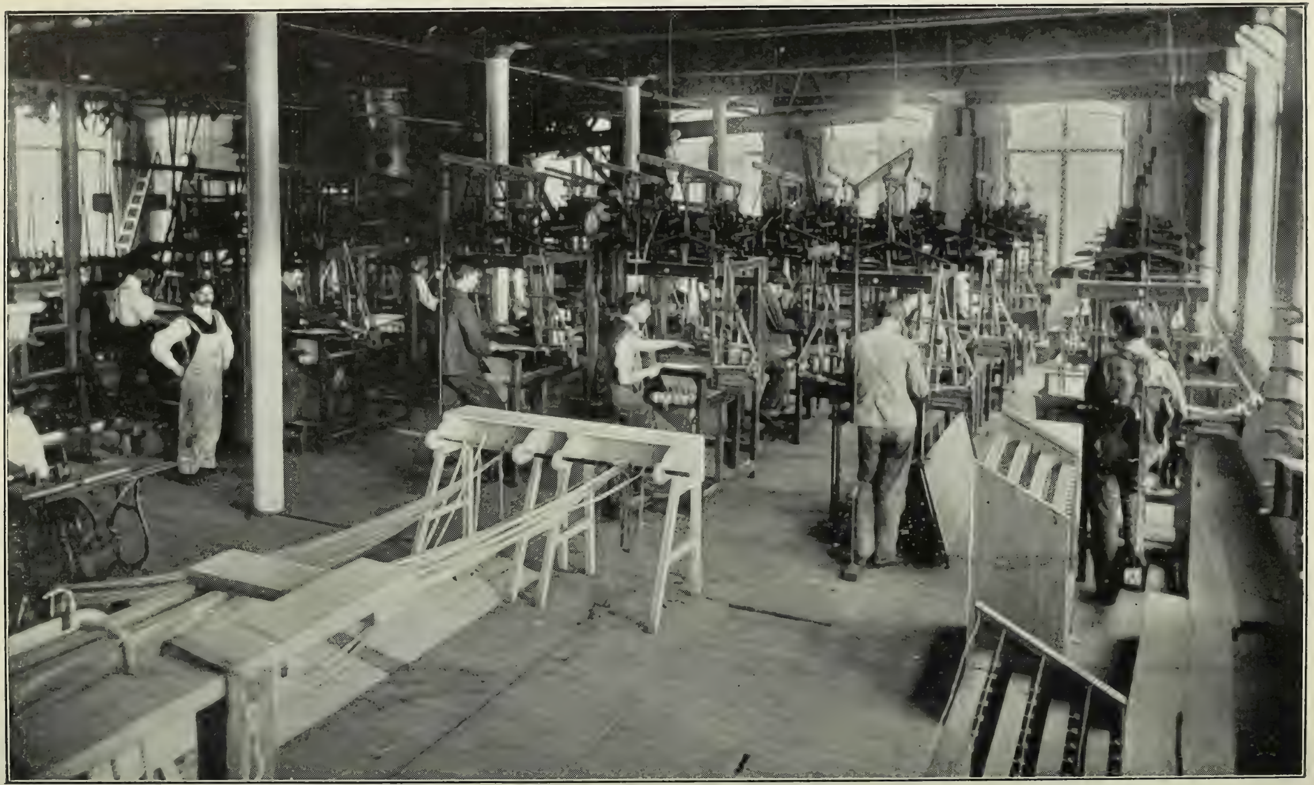
It includes, first, during the third term of the Middle year, a thorough investigation of the laws of statics, with special attention to the solution of practical problems by moments, three forces meeting in a point, resolution of forces, resultant of parallel forces and center of gravity of bodies. The simple machine and the underlying principles of the lever, wheel and axle, inclined plane, pulley, screw, etc., are discussed; together with friction, its cause and effect. The student then takes up the study of dynamics, based on Newton's laws of motion, and problems involving mass, force, momentum, acceleration and inertia are theoretically investigated. In connection with this course a series of lectures on the kinetic energy of fly-wheels and the bursting tendency due to centrifugal force, are given. Also means of determining efficiency and horse-power of water-wheels. In the first term of the Senior year the student takes up Strength of Materials. In studying this subject, attention is directed especially to the action of simple stresses in the different building materials.

The transverse strength of beams is thoroughly investigated, and expressions for the bending moment and resisting moment are thoroughly brought out; the resiliance of materials is introduced and methods are explained for determining the formula for torsion in shafts, and the amount of horse-power transmitted. In connection with this work, a series of lectures are given on designing lap and butt joints, and methods of determining their efficiency, including the pressure in boilers, tubes, water-pipes, etc. During the third term a series of lectures are given on lattice girders of the Warren, Howe and Pratt type, with special attention to the designing of roofs and towers.

The second term of the Senior year is devoted principally to the steam-engine, power transmission and machine-design. In this course special attention is given to the economy of the different types of boilers, and of fuel and water; with means of preventing corrosion, incrustations and general destructive elements. Attention is given to the management and design of the principal settings and fittings, stacks, economizers, pumps and injectors. In the study of the steam-engine the student takes up first the theoretical types and then from the mechanics of the steam to the commercial types. Especial attention is given to the design and operation of valve-gears, governors and cylinders; and the correction of errors in these by the indicator diagram. In the third term of the Senior year a thorough course is given in Mill Construction, Mill Ventilation, Mill Sanitation and Fire Protection. Humidifiers, sprinkler systems and heating systems are studied in detail. The student in this course also has the advantage of attending a course of lectures in the management and operation of manufacturing plants.

SPECIAL TEXTILE COURSE.

In order to accommodate to a limited extent a class of young men, who may not have the time or means to take the full Textile Course, a special course in Textiles is offered, which may be fin-



PRACTICE ON HAND LOOMS.

ished in two years. As students taking this course are in the mill at practice every day in the week, in order that they may not interfere with the regular students, only a limited number (24) can be taken. All applicants for this course are required to pass an examination in Arithmetic, and must be especially proficient in the following subjects: Compound numbers, Ratio and Proportion, Percentage, Involution and Evolution, Alligation and Mensuration. In case there are more than twenty-four applicants for this course, only the twenty-four who are most proficient in the Arithmetic examination will be allowed to enter. Applicants for this course will be received only at the beginning of the year. The examination for this course will be held September 26, 1902, at 9 a. m. No students will be received in this class at other times. No student of the school is eligible to this course after becoming deficient in any of the other courses. No students will be received in the Textile Department, unless they are taking the regular course, or the special course here mentioned. The requirement in Arithmetic is absolutely necessary for the success of the student. In the practical work which he receives in the mill, in the calculation of speeds, etc., no time is available for drilling the student in the principles of Arithmetic. All of his time is taken up in practice, and such recitation work as will benefit his practical knowledge of Textile work. In the space of two years, he will be capable of taking charge of a department of a cotton mill. He will have a limited training in Textile design, and may by his own efforts and proper application become a competent superintendent. This course will include no work on Jacquard Looms, and is not accompanied by a certificate or degree. Students in this course will be admitted only at the beginning of the fall session.

COURSE OF STUDY.

(Numbers following subjects indicate hours per week.)

SUB-APPRENTICE YEAR.

(Same for all Courses.)

FIRST TERM.

October to January (12 weeks).

Mathematics (5).—Algebra; through Factoring.
Mathematics (5).—Geometry; through Book I.
English (5).—Grammar.
Shop-Work (8).

SECOND TERM.

January to April (12 weeks).

Mathematics (5).—Algebra, through Involution.
Mathematics (5).—Geometry, through Book IV.
English (5).—Grammar.
Shop-Work (8).

THIRD TERM.

April to June 20 (12 weeks).

Mathematics (5).—Algebra, to Higher Simultaneous Equations.
Mathematics (5).—Geometry, to Solid.
English (5).—Grammar.
Shop-Work (8).

IN THE DYE HOUSE.

MECHANICAL ENGINEERING.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—College Algebra; Solid Geometry.

English (4).—U. S. History; Spelling; Readings; Essays.

Chemistry (5).—Inorganic Chemistry (3); Qualitative Laboratory (2).

Drawing (4).—Free-hand; Geometric; Linear; Perspective Sketching.

Shop-Work (12).

SECOND TERM.

Mathematics (5).—College Algebra; Solid Geometry completed.

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays.

Chemistry (5).—Inorganic Chemistry (3); Qualitative Laboratory (2).

Drawing (8).—Instrumental Linear; Descriptive Geometry Drawing.

Shop-Work (12).

THIRD TERM.

Mathematics (5).—Trigonometry completed.

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays.

Chemistry (5).—Inorganic Chemistry (3); Qualitative Laboratory (2).

Drawing (8).—Descriptive Geometry Drawing.

Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Higher Algebra completed; Trigonometry practice.

English (4).—History of England; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (8).—Descriptive Geometry Drawing.
Physics (3).—Mechanics.
Shop-Work (8).

SECOND TERM.

Mathematics (5).—Analytic Geometry.
English (5).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Light and Heat.
Physics Laboratory (3).—Mechanics and Sound.
Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Geometry completed.
English (3).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Light and Heat.
Physics Laboratory (3).—Mechanics and Sound.
Surveying (4).—Use of Level, Compass and Transit.
Shop-Work (8).

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Calculus.
English (3).—Political Economy; Readings; Essays.
Drawing (4).—Spur, Bevel and Worm Gearing.
Engineering (3).—Kinematics and Mechanism.
Physics (4).—Electricity and Magnetism.
Physics Laboratory (3).—Heat and Light.
Shop-Work (8).

SECOND TERM.

Mathematics (5).—Calculus completed.
English (3).—Political Economy; Readings; Essays.
Chemistry (3).—Fuels and Metallurgy.

Drawing (4).—Machine-Design.
Engineering (3).—Mechanism; Materials; Machine-Design.
Physics Laboratory (3).—Electricity and Magnetism.
Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.
English (3).—American Literature; Readings; Essays.
Chemistry (3).—Metallurgy.
Drawing (4).—Machine-Design.
Engineering (6).—Mechanics of Materials (3); Hydraulics (3).
Shop-Work (8).

SENIOR YEAR.

FIRST TERM.

English (2).—English Literature; Criticisms; Debates; Readings.

Drawing (8).—Special Problems in Designing Machinery.

Mechanical Engineering (14).—Analytic Mechanics (4); Steam-Engine and Other Prime Movers (4); Mechanics of Materials (3); Laboratory Work in Materials (3).

Shop-Work (8).

SECOND TERM.

English (2).—English Literature; Original Speeches; Readings.

Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (14).—Analytic Mechanics (4); Steam-Engine and Other Prime Movers (4); Mechanical Laboratory (3); Mechanics of Materials (3).

Electrical Engineering (2).—Electrical Machinery.

Shop-Work (8).

THIRD TERM.

English (2).—English Literature; Original Speeches; Readings.

Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (14).—Steam and Gas Engines (4);

Valve-Gears (2); Machine-Design, Text (3); Framed Structures (2); Mechanical Laboratory (3).

Thesis Work (4).

Shop-Work (8).

ELECTRICAL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Calculus.

English (3).—Economics; Readings; Essays.

Physics (4).—Electricity and Magnetism.

Physics Laboratory (3).—Heat and Light.

Machine-Design (3).—Mechanism.

Machine-Design (4).—Detail and Assembly Drawing.

Shop-Work (4).

SECOND TERM.

Mathematics (5).—Integral Calculus; Slide Rule; Least Squares.

English (3).—Economics; Readings; Essays.

Chemistry (3).—Fuels and Metallurgy.

Physics Laboratory (3).—Electricity and Magnetism.

Machine-Design (3).—Mechanism.

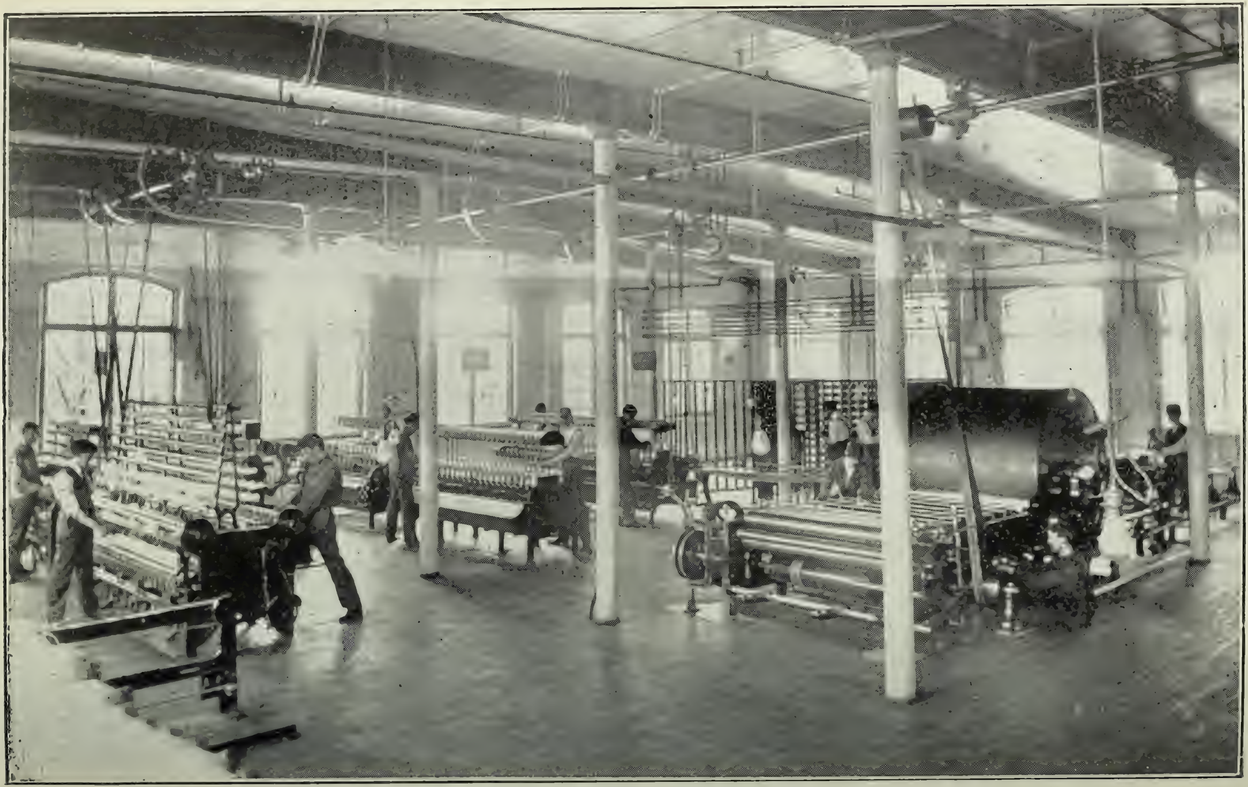
Machine-Design (4).—Gear and Cam Drawing.

Electrical Engineering (2).—Direct Current Machinery.

Shop-Work (4).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.



SPOOLERS, TWISTERS, WARPERS AND SLASHER.

English (3).—American Literature; Readings; Essays.
Chemistry (3).—Fuels and Metallurgy.
Physics Laboratory (3).—Electricity and Magnetism.
Electrical Engineering (4).—Direct Current Machinery.
Machine-Design (4).—Motion Diagrams.
Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

Mechanical Engineering (4).—Analytic Mechanics.
English (2).—English Literature; Criticisms; Debates; Readings.
Electrical Engineering (2).—Telephone and Telegraph.
Electrical Engineering (6).—Design of Direct Current Machinery.
Electrical Engineering (3).—Testing of Direct Current Machinery.
Electrical Engineering (2).—Electric Batteries.
Experimental Engineering (3).—Strength of Materials.
Experimental Engineering (3).—Strength of Materials Laboratory.
Shop-Work (4).

SECOND TERM.

Mechanical Engineering (4).—Analytic Mechanics.
English (2).—English Literature; Criticisms; Readings; Essays.
Electrical Engineering (5).—Alternating Current Machinery.
Electrical Engineering (3).—Testing of Direct Current Machinery.
Electrical Engineering (2).—Illumination.
Experimental Engineering (3).—Steam-Engine.
Experimental Engineering (3).—Steam-Engine Laboratory.
Shop-Work (4).

THIRD TERM.

English (2).—English Literature; Criticism; Reading; Essays.

Electrical Engineering (5).—Alternating Current Machinery.

Electrical Engineering (5).—Power Plants.

Electrical Engineering (3).—Testing of Alternating Current Machinery.

Shop-Work (4).

Thesis (12).

CIVIL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Calculus.

English (3).—Economics; Readings; Essays.

Egineering (7).—Field Engineering (4); Railroad Surveying; Topographical Surveying (3).

Physics (7).—Electricity and Magnetism (4); Physical Laboratory; Heat, Light and Sound (3).

Shop-Work (4).

SECOND TERM.

Mathematics (5).—Calculus completed; Least Squares.

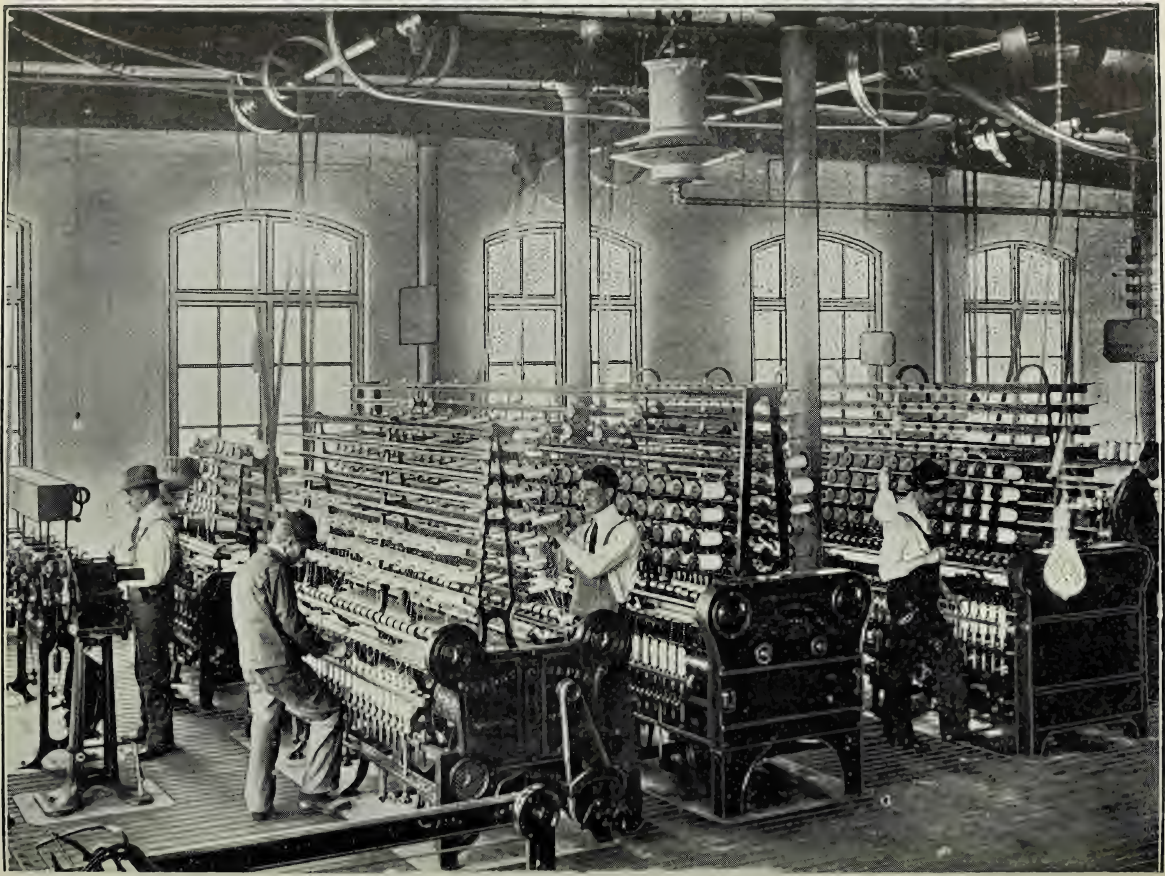
Chemistry (3).—Fuels and Metallurgy.

English.—Economics; Readings; Essays.

Egineering (8).—Location and Construction of Roads and Pavements (3); Stereotomy and Shades, Shadows and Perspective (2); Field Practice (3).

Physics (3).—Physical Laboratory, Electricity and Magnetism (3).

Drawing (4).—Stereotomy.



CONE WINDERS AND TWISTERS.

THE
JOHN CRERAR
LIBRARY

THIRD TERM.

Mathematics (5).—Analytic Mechanics.

Chemistry (3).—Metallurgy.

English (3).—American Literature; Readings; Essays.

Egineering (6).—Mechanics of Materials (3); Hydraulics (3).

Drawing (4).—Shades, Shadows and Perspective.

Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

Mechanical Egineering (10).—Analytic Mechanics (4); Mechanics of Material (3); Experimental Engineering Laboratory (3).

English (2).—English Literature; Criticism; Debates; Readings.

Civil Egineering (8).—Masonry Structures (4); Hydraulics (2); Topographical and Geodetic Surveying (2).

Drawing (4).—Topographical and Geodetic Mapping (4).

SECOND TERM.

English (2).—English Literature; Original Speeches; Readings.

Mechanical Egineering (10).—Analytic Mechanics (4); Mechanics of Materials (3); Steam-Engine (3).

Civil Egineering (8).—Framed Structures (3); Municipal Engineering (2); Experimental Engineering Laboratory (3).

Drawing (4).—Designs of Structures.

THIRD TERM.

Civil Egineering (8).—Municipal Engineering (3); Framed Structures (5).

English (2).—English Literature; Criticisms; Debates; Readings.

Electrical Egineering (6).—Electrical Machines (3); Electrical Laboratory (3).

Drawing (4).—Designs of Structures and Municipal Improvements.

Thesis.

TEXTILE ENGINEERING

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—College Algebra; Solid Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—U. S. History; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric Linear; Perspective Sketching.

Mill (4).—Carding and Spinning.

Shop-Work (12).

SECOND TERM.

Mathematics (5).—Solid Geometry completed; Trigonometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet, and Orthographic Projections.

Mill (4).—Carding and Spinning.

Shop-Work (12).

THIRD TERM.

Mathematics (5).—Trigonometry completed.

Chemistry (5).—Inorganic Chemistry (3); Qualitative Laboratory (2).

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet and Orthographic Projections.

Mill (4).—Carding and Spinning.

Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Higher Algebra completed; Trigonometry Practice.

Chemistry (7).—Elementary Organic Chemistry (2); Organic Laboratory (1); Qualitative Laboratory (4).

English (4).—History of England; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

Designing (2).

Mill (8).—Carding and Spinning (4); Plain Weaving (4).

SECOND TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (7).—Elementary Organic Chemistry (2); Organic Laboratory (1); Qualitative Laboratory (4).

English (5).—English Literature; Readings; Essays.

Physics (3).—Heat, Sound and Light.

Drawing (4).—Machine Drawing to Scale.

Designing (2).

Mill (8).—Carding and Spinning (4); Plain Weaving (4).

THIRD TERM.

Mathematics (5).—Analytic Geometry completed.

Chemistry (7).—Elementary Organic Chemistry (2); Organic Laboratory (1); Qualitative Laboratory (4).

English (3).—English Literature; Readings; Essays.

Physics (3).—Electricity and Magnetism.

Drawing (4).—Machine Drawing to Scale.

Designing (4).

Mill (8).—Carding and Spinning (4); Hand Loom Weaving (4).

MIDDLE YEAR.

FIRST TERM.

Chemistry (6).—Dyeing Lectures (2); Quantitative Laboratory (4).

English (3).—Political Economy; Readings; Essays.

Mechanism (3).

Drawing (4).—Detail and Assembly Drawing Textile Machines to Scale.

Designing (8).—Fabric Structure and Analysis (4); Designing (4). 456 123456 12

Carding (3)—Recitations.

Weaving (2).—Recitations. 123456 1235 123456 12345666

Mill (8).—Carding and Spinning (4); Dobby Weaving (4).

SECOND TERM.

Chemistry (6).—Dyeing Lectures (2); Quantitative Laboratory (4).

English (3).—Political Economy; Readings; Essays.

Mechanism (3).

Drawing (4).—Gears, Cams, and Motion Diagrams.

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Carding (3)—Recitations.

Weaving (2)—Recitations.

Mill (8).—Carding and Spinning (4); Hand Loom Weaving (4).

THIRD TERM.

Chemistry (6).—Dyeing Lectures (2); Quantitative Laboratory (4).

English (3).—American Literature; Readings; Essays.

Mechanics (5).

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Carding (3)—Recitations.

Weaving (2)—Recitations.

Mill (8).—Carding and Spinning (4); Dobby Weaving (4).

SENIOR YEAR.

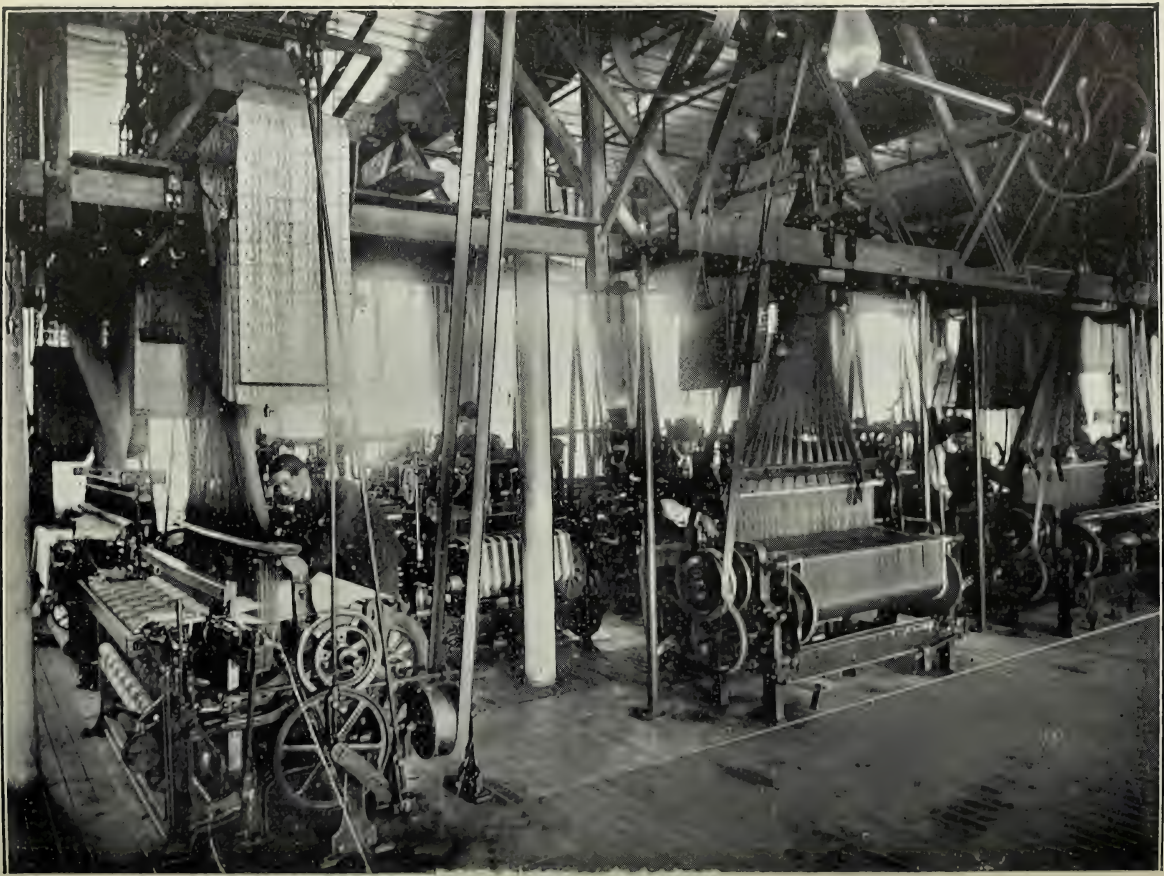
FIRST TERM.

Chemistry (8).—Textile Chemical Laboratory and Dye House.

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Mechanics (7).—Strength of Materials Recitations (4); Laboratory (3).

Carding (3).—Recitations.



THE JACQUARD LOOMS

THE
JOHN CRERAR
LIBRARY

Weaving (2)—Recitations.

Mill (8).—Carding and Spinning (4); Hand Loom Weaving (4).

Shop-Work (4).

SECOND TERM.

Chemistry (8).—Textile Chemical Laboratory and Dye-House.

Designing (4).—Jacquard Designing.

Mechanics (6).—Steam-Engine and Boilers Recitations (3); Laboratory (3).

Carding (3)—Recitations.

Weaving (2).—Recitations.

Electricity (6).

Mill (8).—Carding and Spinning (4); Dobby & Jacquard Weaving (4).

Shop-Work (4).

THIRD TERM.

Chemistry (8).—Textile Chemical Laboratory and Dye-House.

Designing (4).—Jacquard Designing.

Mechanics (5).—Mill Construction; Hydraulics.

Carding (3)—Recitations.

Drawing (4).—Advanced Textile Drawing; Floor Plans, etc.

Mill (8).—Carding and Spinning (4); Dobby & Jacquard Weaving (4).

Shop-Work (4).

ENGINEERING CHEMISTRY.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—College Algebra and Solid Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory Work (2).

English (4).—U. S. History; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric; Linear; Perspective Sketching.

Shop-Work (12).

SECOND TERM.

Mathematics (5).—Solid Geometry completed; Trigonometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory Work (2).

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays. 345

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

THIRD TERM.

Mathematics (5).—Trigonometry completed.

Chemistry (5).—Inorganic Chemistry (3); Laboratory Work (2).

English (4).—Rhetoric; Mythology; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Analytical Geometry.

Chemistry (12).—Qualitative Laboratory.

English (4).—History of England; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

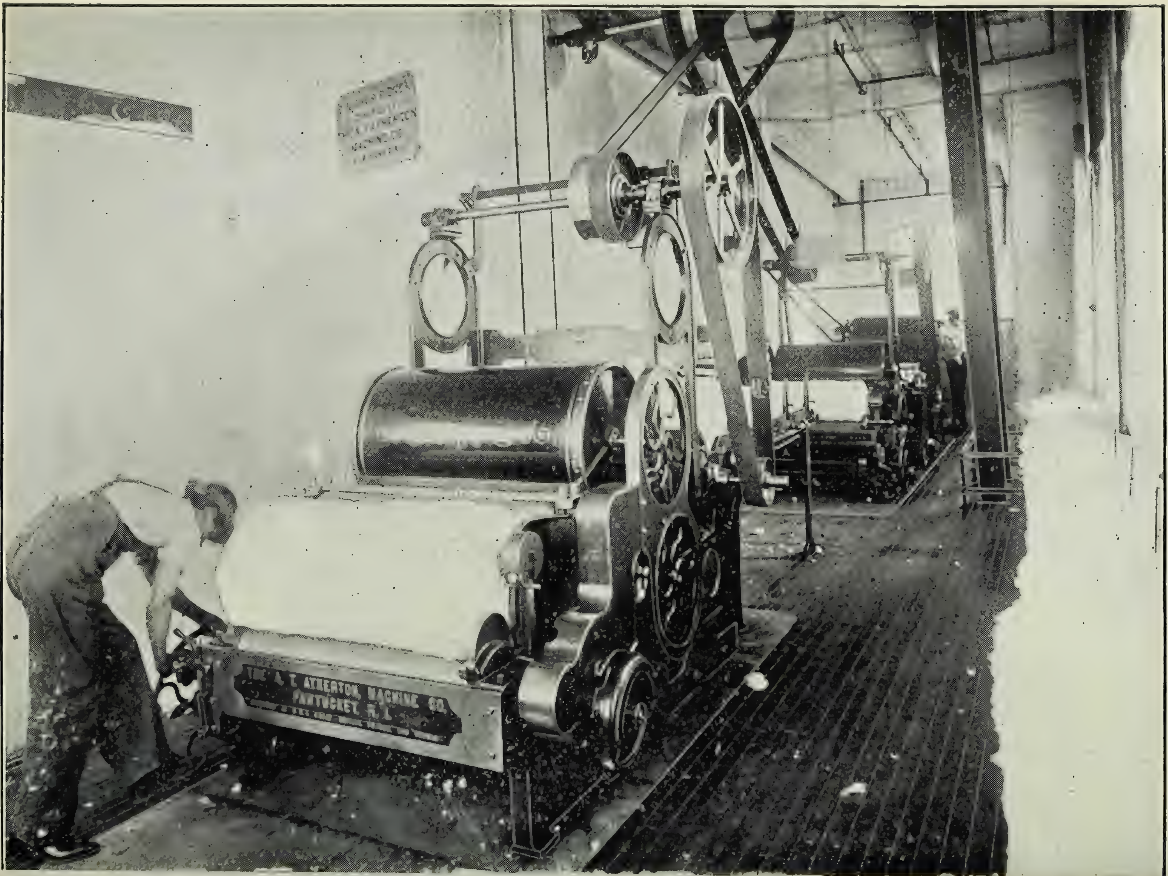
Shop-Work (4).—Smith shop.

SECOND TERM.

Mathematics (3).—Analytical Geometry.

Chemistry (16).—Qualitative (8); Quantitative (8); General Methods.

English (5).—English Literature; Readings; Essays.



THE PICKER ROOM

Physics (3).—Heat, Sound and Light.
Drawing (4).—Machine Drawing to Scale.
Shop-Work (4).—Machine-shop.

THIRD TERM.

Chemistry (20).—Qualitative (4); Quantitative (16); General Methods.
English (3).—English Literature; Readings; Essays.
Physics (3).—Electricity and Magnetism.
Physics Laboratory (3).—Mechanics and Sound.
Drawing (4).—Drawing of Technological Charts.
Shop-Work (4).—Machine-shop.

MIDDLE YEAR.

FIRST TERM.

Chemistry (12).—Organic Chemistry (3); Organic Laboratory (3); Quantitative (6).
English (3).—Political Economy; Readings; Essays.
Physics (4).—Electricity and Magnetism.
Physics Laboratory (3).—Heat and Light.
Mechanism (3).
Shop-Work (4).

SECOND TERM.

Chemistry (17).—Organic Chemistry (3); Organic Laboratory (2); Quantitative (12).
English (3).—Political Economy; Readings; Essays.
Physics Laboratory (3).—Electricity and Magnetism.
Mechanism (3).
Metallurgy (3).
Shop-Work (4).

THIRD TERM.

Chemistry (21).—Organic Chemistry (3); Organic Laboratory (4); Quantitative (14).
English (3).—American Literature; Readings; Essays.
Metallurgy (3).
Mechanics (5).—Analytic Mechanics.

SENIOR YEAR.

FIRST TERM.

Chemistry (17).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (12).

English (2).—Criticisms; Debates; Readings.

Engineering (7).—Strength of Materials (4); Experimental Engineering (3).

Dyeing (6).—Lectures (2); Laboratory (4).

SECOND TERM.

Chemistry (21).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (16).

English (2).—English Literature; Original Speeches; Readings.

Engineering (6).—Steam-Engine and Boilers (3); Power Laboratory (3).

Dyeing (6).—Lectures (2); Laboratory (4).

THIRD TERM.

Chemistry (5).—Industrial Chemistry (3); Physical Chemistry (2).

Electricity (3).—Electrical Machinery.

Dyeing (6).—Lectures (2); Laboratory (4).

Thesis.

SPECIAL TEXTILE COURSE.

FIRST YEAR.

FIRST TERM.

Shop-Work (12).

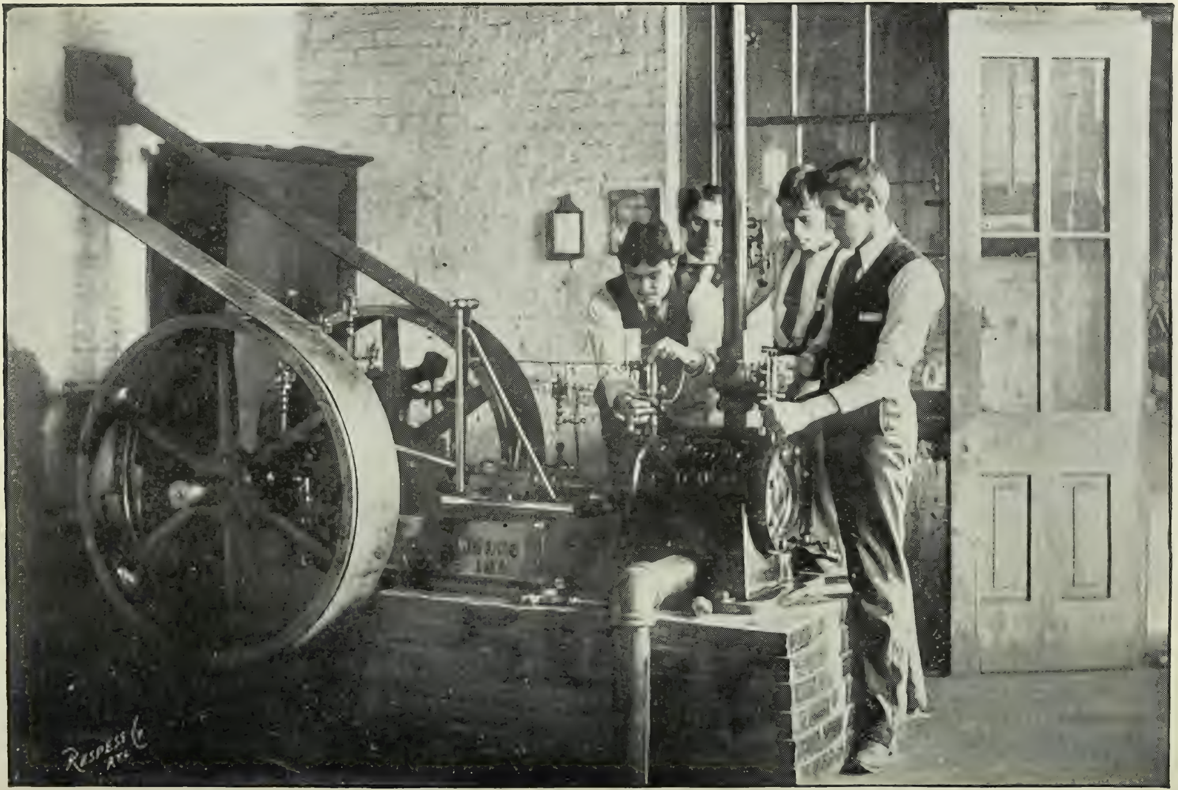
Weaving (8).

Carding (8).

Carding Recitations.—Two per week, one hour each.

Weaving Recitations.—Two per week, one hour each.

Designing (4).


RESPESS Co ATL.

TAKING INDICATOR CARDS.

THE
JOHN CRERAR
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SECOND TERM.

Shop-Work (12).
Weaving (8).
Carding (8).
Carding Recitations.—Two per week, one hour each.
Weaving Recitations.—Two per week, one hour each.
Designing (4).

THIRD TERM.

Shop-Work (12).
Weaving (8).
Carding (8).
Carding Recitations.—Two per week, one hour each.
Weaving Recitations.—Two per week, one hour each.
Designing (4).

SECOND YEAR.

FIRST TERM.

Shop-Work (12).
Weaving (8).
Carding (8).
Carding Recitations.—Two per week, one hour each.
Weaving Recitations.—Two per week, one hour each.
Designing (6).

SECOND TERM.

Shop-Work (12).
Weaving (8).
Carding (8).
Carding Recitations.—Two per week, one hour each.
Weaving Recitations.—Two per week, one hour each.
Designing (6).

THIRD TERM.

Shop-Work (12).
Weaving (8).
Carding (8).
Carding Recitations.—Two per week, one hour each.
Weaving Recitations.—Two per week, one hour each.
Designing (6).

History and General Information.

During the session of the Legislature of Georgia in 1882, a committee of ten was appointed to visit technical institutions of the North and report on the advisability of establishing such a school in Georgia.

The committee made its report at the summer session of the Legislature in 1883, recommending the establishment of the school. A bill was introduced for that purpose, and was lost, receiving only sixty-five votes.

The people of the State were appealed to by the supporters of the measure, and it was the issue in many counties in the election of members of the next Legislature. The State Agricultural Society recommended it, and many other prominent organizations of the State pressed the matter upon the attention of the people.

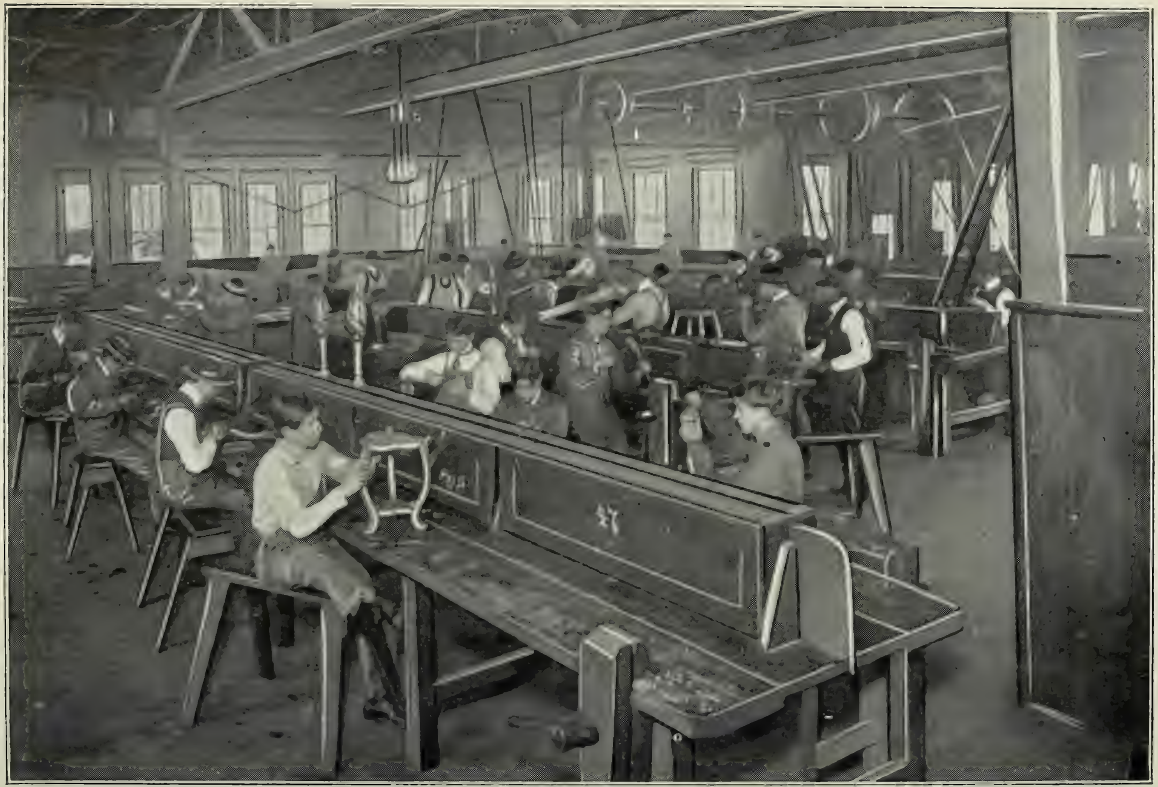
The bill was introduced again by Hon. N. E. Harris, and was passed at the summer session, October 16, 1885, appropriating $65,000 to found the school.

The first Board of Commissioners was appointed by Governor McDaniel, on or about January 1, 1886, as follows: N. E. Harris, S. M. Inman, E. R. Hodgson, O. S. Porter, and Columbus Heard. The board organized and selected N. E. Harris, chairman, and S. M. Inman, secretary and treasurer.

The act provided for competitive bids for the location of the school from various sections of the State, and the commission, after considering propositions, located the school in Atlanta.

During the summer of 1888, the buildings and part of the equipment being ready, a faculty was elected, and academic and shop-work began October 3 of that year.

By act of the Legislature, December 9, 1890, two other trustees were added to the local board of trustees, and the power to grant



BENCH WORK IN WOOD SHOP.

THE
JOHN CRERAR
LIBRARY

diplomas and establish rules and regulations was also conferred on the local board.

In March, 1891, a Sub-Apprentice Class was established for the purpose of preparing those students for the Apprentice Class whose opportunities for advancement in studies had been limited.

On April 21, 1892, between two and five o'clock a. m., the school shops were totally destroyed by fire. With the insurance on the building and machinery, and additional appropriation made by the Legislature, the building and machinery were at once replaced, and the result of the misfortune was, in the end, most beneficial, as both building and equipment are superior to what were destroyed.

The leading object of the school is to teach the principles of science, especially those which relate to the mechanic and industrial arts.

The school offers an education of high grade, founded on Mathematics, the English Language, the Physical Sciences, and Drawing, while it gives such familiarity to some industrial pursuits as will enable the graduate to earn a living.

In December, 1896, the Legislature appropriated $20,000, for the equipment of a Department of Electrical Science ($5,000), and for building a dormitory ($15,000). The dormitory was built and first occupied by students at the opening of the fall session of 1897.

The Local Board of Trustees met in December, 1896, and established the degrees of Electrical and Civil Engineering.

In December, 1897, the Legislature appropriated $10,000 for the establishment of a Textile Department, provided that the friends of the school contribute $10,000 additional in money and machinery.

During the year 1898 nearly $20,000 worth of machinery was donated to the school, and about $13,500 in cash. Experienced mill architects were employed to make plans for the Textile building described on page 88. The regular course in Textiles, both in theory and in practice, began in the fall of 1899.

Mr. Aaron French, of Pittsburg, Pa., became interested in the school in the summer of 1897, and when he was asked to co-operate in meeting the conditions imposed by the Legislature, he made several donations. The first, $2,600, was given without any condition. The second, $3,000, was given provided the friends of the school raise $3,000 additional.

The city of Atlanta promptly met this condition by appropriating the necessary $3,000 in July, 1898.

Mr. French's third donation amounted to $3,000, and enabled the trustees to make material increase in the size of the Textile building.

Other gifts of the school have been as follows:

From Mr. J. W. Rucker for maintenance, in June, 1899	$ 3,000
From Mr. Aaron French for maintenance, in June, 1899	3,000
From Mr. Aaron French for scholarship, in July, 1898	500
From Mr. Aaron French for scholarship, in December, 1899	500
From Mr. Aaron French for maintenance, in January, 1900	3,500

In 1900 the following:

From James Swann for dormitory	21,500
From Aaron French for buildings	2,500
From S. M. Inman, Janie Austell Swann Dormitory	2,000
From Alfred Austell, Janie Austell Swann Dormitory	2,000
From J. W. English for buildings	1,000
From J. W. English, Jr. for buildings	1,000
From W. P. Inman for buildings	1,000
From A. B. Steele for buildings	500
From *Atlanta Constitution* for buildings	500
From Hoke Smith for buildings	500
From Whittier Mills for buildings	400
From Geo. W. Parrott for buildings	250
From Frank Hawkins for buildings	250
From Geo. Winship for buildings	250
From Jacob Elsas for buildings	250

From J. D. Turner for buildings	250
From Geo. W. Harrison for buildings	100
From Willis Reagan for buildings	100
From D. O. Dougherty for buildings	100
From J. W. Pope for buildings	100
From Geo. A. Speer for buildings	100
From L. H. Beck for buildings	100
From W. S. Elkin for buildings	100
From Jno. A. Miller for buildings	100
From W. D. Grant for buildings	100
From Eiseman Bros. for buildings	100
From *Atlanta Journal* for buildings	50
From Hunnicutt & Bellingrath for buildings	50
From F. W. McRae for buildings	50
From Sciple Sons for buildings	50
From Randall Bros. for buildings	50
From Alexander & Bro. for buildings	50
Total	$35,450

In honor of Mr. French the Textile Department is called

THE A. FRENCH TEXTILE SCHOOL.

The establishment of this department is an entirely new feature in education in the State of Georgia, and the superior equipment for instruction in the manufacture of all grades of cotton goods is expected to promote interest in manufacturing.

It will be noticed in the Textile course of study that manual training, chemistry, dyeing and engineering are included.

APPROPRIATIONS AND DONATIONS.

The school receives $40,000 per annum from the State, and $2,500 per annum from the city of Atlanta. During the session of the Legislature in 1900, the maintenance fund was increased from $30,000 to $40,000 per annum.

In December, 1900, the Legislature appropriated $10,000 for an electrical building, and $6,000 for additional textile equipment, with the proviso that these amounts would not be available until the friends of the school should furnish $25,000 in cash donations. The condition was met as stated above.

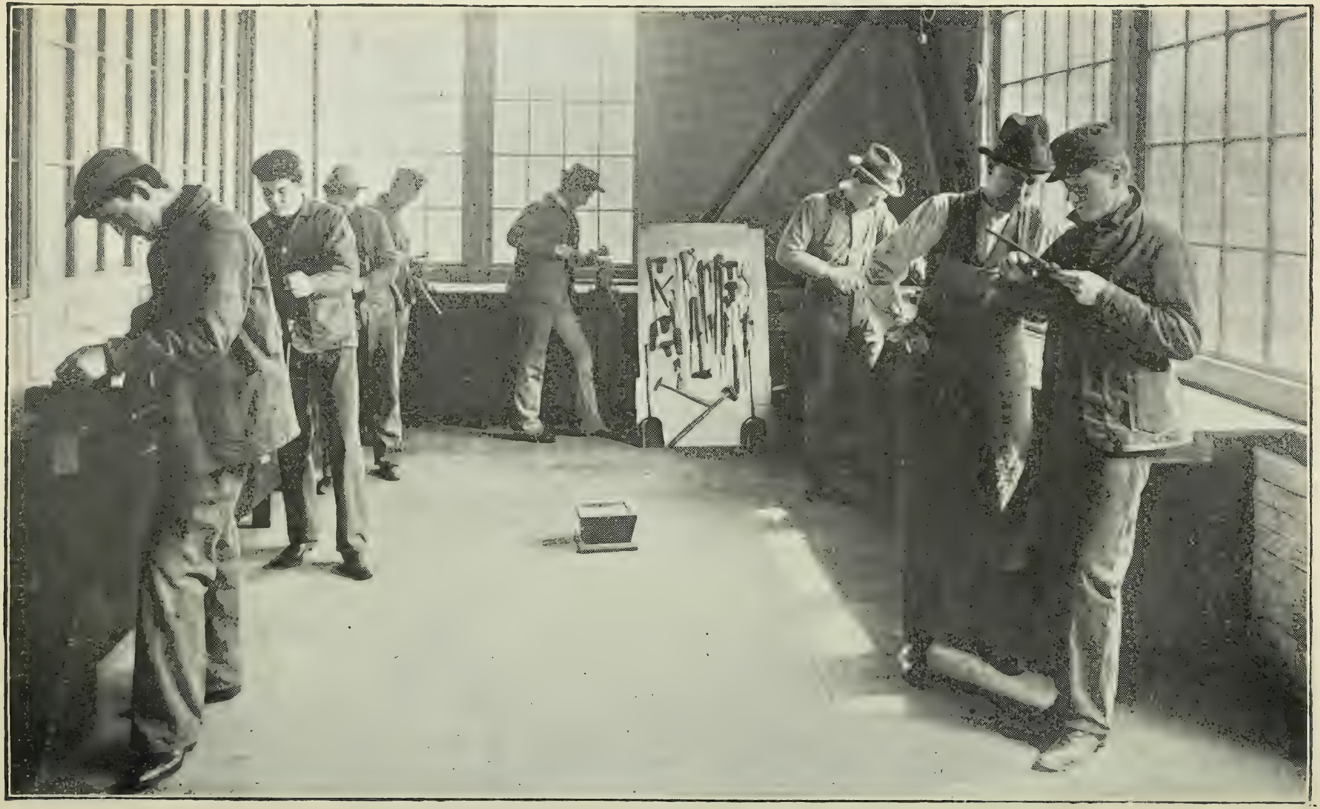
BUILDINGS.

The school occupies a beautiful site in a campus of nine acres, lying at the junction of North avenue and Cherry street, easily accessible by street-car lines on Marietta, West Peachtree and Luckie streets. The Academic building is a splendid edifice of brick, trimmed with granite and terra-cotta, slate roof. It has one hundred and thirty feet front, is one hundred and twenty deep, and is four stories above basement story. It contains ample accommodations in halls, offices, apparatus-rooms, recitation and lecture-rooms, library, and chapel.

The workshops are also of brick, the main shop building being two hundred and fifty feet long by eighty wide, and two stories, with large basements. It is admirably designed with reference to its use, and affords ample space for the machine and wood-shops and the foundry. In the basement are complete equipments for hot and cold baths, and lockers for students' clothes. The smith-shops, boilers, and cupolas for foundry are located outside the main shop building, thus reducing to a minimum all chances of another disaster by fire.

During 1898 a new smith-shop was built. It contains 21 forges, a vise-room, and office, and is well lighted by large windows which extend entirely around the building.

The new Textile building was completed in 1898, and is 150 by 70 feet with three floors for the accommodation of machinery, class-rooms, etc. It was designed by Lockwood, Greene & Co.,



IN THE VISE ROOM OF THE SMITH SHOP.

THE
JOHN CRERAR
LIBRARY

of Boston, and fulfills every requirement of a modern cotton mill.

The Dormitory buildings consist of the Janie Austell Swann Dormitories, containing 50 rooms for students; the Knowles Dormitory, containing thirty-six rooms for students, gymnasium, shower-baths, and dining-room; two smaller dormitories of eight rooms each; and a small building of four rooms.

THE NEW BUILDINGS.

The Janie Austell Swann Dormitories, costing $30,000, for the accommodation of 100 students, has been completed. It is a handsome structure of three stories, 142 by 54 feet, and finished in pressed brick and stone, with monumental pillars at the front entrance. It is heated by the blower system, lighted with electricity, and contains ample halls, reception rooms, etc. The building is a memorial erected by Mr. James Swann to his wife. (See page 86).

The new Electrical building, costing $15,000 has been completed. It is three stories in height, 90x82 feet in plan, and will contain the Mechanical and Experimental Laboratory, the Electrical Laboratory, Drawing-rooms, Blue-print room and class-rooms.

EQUIPMENT.

The Mechanical, Electrical, Chemical, and Physical laboratories have been fitted up with reference to practical work, and such additions will be made from time to time as may be required for experimental research. The apparatus and appliances are of the newest and best forms, and will be increased as occasion may demand.

The workshops have been equipped with machinery and tools from the best makers, and of the latest pattern, at a cost of over twenty thousand dollars. In pursuance of the fundamental idea of giving the students access to the best machinery and experimental knowledge of the best methods of mechanical work, the Trustees have put the Mechanical Department on a footing with the most improved and complete shops in the country, and hardly any process requiring fine material and accurate workmanship is beyond its capacity.

The shops of the institution have already won an enviable reputation for the quality of their iron and brass castings, perfection in gear-cutting, and the beauty and variety of their wood and other work.

The Textile Building has an unsurpassed equipment of cotton manufacturing machinery, listed elsewhere.

DEGREES CONFERRED.

The degrees conferred are as follows: Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Textile Engineering, and Bachelor of Science in Engineering Chemistry.

SESSIONS AND TERMS.

The session begins the last Wednesday in September, and ends the Thursday before the fourth Wednesday in June. It will be divided into three terms of twelve weeks each. There will be an intermission of one week, embracing Christmas.

All students are required, and all applicants are requested to be present at the opening hour of each session, as punctuality operates to their advantage in many ways.

THE A. FRENCH SCHOLARSHIPS.

Mr. Aaron French, of Pittsburg, Pa., has given three scholarships to the Georgia School of Technology, which are self perpetuating in that the beneficiary refunds the money after graduation, in small monthly notes without interest.

MR. W. E. KLEIN.

The conditions under which the scholarships are awarded are as follows:

1. The applicant must be at least sixteen years of age.
2. No one is eligible whose family pays taxes on more than $3,000 worth of property. (Affidavits from city and county tax-collectors to this effect are required.)
3. The scholarships are to be awarded by competitive examinations in the following subjects:

Algebra; through quadratics and radicals.

Geometry; through Plane.

English. including grammatical construction of sentences, composition or letter showing proficiency in spelling, punctuation, and division into paragraphs and parsing.

SCHOLARSHIP NUMBER 1.

The competitive examination for scholarship number one was held at the School in the fall of 1898, and was won by Mr. W. E. Klein, of Atlanta, He will graduate in 1902, and in the fall of that year, September 24, an examination will be held for the selection of his successor.

SCHOLARSHIP NUMBER 2.

The competitive examination for scholarship number two was held at the School, Wednesday, September 26, 1900, under the conditions named above, and was won by Mr. G. A. Harbour, of Atlanta.

MR. G. A HARBOUR.

SCHOLARSHIP NUMBER THREE.

The competitive examination for scholarship number three will be held at the School, September 24, 1902.

The Scholarships are Limited to no State or Section of the Country.

The winners of these scholarships will be furnished funds at such times as the President may think necessary for expenses, books, fees, etc., but not over $125.00 will be furnished each year.

No formal application for entrance into the competitive examination is necessary. The presence of the applicant at the School at 9 a. m., September 26th, will entitle him to admission to the examinations.

SUB-APPRENTICE CLASS.

Applicants for this class must be at least sixteen years old and pass a satisfactory examination in arithmetic, including common and decimal fractions, compound numbers, percentage, ratio, proportion, alligation, square root, cuberoot and mensuration.

Students in this class will have access to the shops of the school, and will be under the same general government as the other classes, as to sessions, fees, rules, etc.

APPRENTICE CLASS.

Candidates for admission to the Apprentice Class must be at least sixteen years old, must be of good moral character, and must pass examination in the following studies, viz.:

Algebra.—Addition, subtraction, multiplication, division, factoring, greatest common divisor, least common multiple, simple equations, fractions, simultaneous equations of the first degree, involution, evolution, fractional and negative exponents, quadratics, and radicals.

Geometry.—Through Plane.

English.—Including grammatical construction of sentences, composition or letter showing proficiency in spelling, punctuation, and division into paragraphs and parsing.

Candidates for admission to advanced classes must be sixteen years of age, and must show that they are qualified to enter the class for which they apply by examination.

EXAMINATIONS.

Two entrance examinations will be held; one at the time of the final examinations for the school session, about June 15, and the other at the opening of the fall term, about September

25. Applicants for admission to Apprentice and higher classes will be admitted to either or both of these examinations.

Final examinations are held at the end of each term. Students are liable to be dropped from the roll of their class at any examination when they do not meet the requirements, and at any time when they neglect their studies and fall hopelessly behind their classes. No fees or tuition are refunded under such circumstances. All examinations are written.

GOOD RECORD CERTIFICATE.

All new students must present a certificate from the last school they attended, stating they left in good standing with the authorities.

REPORTS.

Reports of the standing of students are issued at the close of each term.

Bulletin-boards are placed in the halls, and upon these are posted each month the grading of students as ascertained by the monthly examinations.

Whenever a student is deficient in any study or department at the close of any month a report of such fact is sent to his parents.

LIBRARY AND READING ROOM.

The school is now supplied with a well-organized and well-selected library of nearly 2,000 volumes. This acquisition is due largely to the generosity of local friends who have responded to appeals for aid. In addition to the donations in cash and in books already received, the further contributions constantly being made

IN THE LIBRARY.

promise well for the future growth of the library. Valuable literary and scientific reference-books have been acquired, and departments established in fiction, history, biography, travel, philosophy and natural science.

The library is in charge of a competent and thoroughly-trained librarian. All books and pamphlets as soon as received are classified and catalogued in accordance with the most approval card system.

Library hours daily are from 8:30 a. m. to 5:00 p. m., excepting Saturdays, when the closing hour is 2:00 p. m.

There has been established in connection with the library a handsomely-furnished and well-equipped reading-room, supplied with some forty of the leading papers and periodicals of this country and England. Additions to the reading-matter will be made from time to time.

TUITION AND FEES.

Each county in the State is entitled to six free scholarships.

These scholarships will be awarded on the ground of excellence in character and preparation, and time of entrance.

The amount of tuition charged to the excess of six from a county of this State is $25.00 per annual session.

Residents of other States pay a tuition fee of $100.00 per year in addition to the fees of $20.00 and $5.00 mentioned below.

Every student, of whatever place of residence, pays an annual fee of $20.00 to cover contingent expenses. Half of this amount is payable on entrance and the remainder on or before the first Saturday after February 10.

A contingent fee of $5.00 will be required to be deposited with the treasurer on entrance, to cover injury done to college buildings or furniture, which sum will be returned to the student on leaving, if not forfeited.

All students will be required to deposit at the beginning of the fall term—

$10.00 of the annual fee;
$5.00 damage fee, unless already deposited;
$12.50 of the tuition fee, if subject to tuition.

And on or before the first Saturday after February 10—

$10.00 of the annual fee;
$12.50 of the tuition fee, if subject to tuition.

Residents of other States are subject to the above requirements, substituting $50.00 for the amount of the tuition fee per half year.

Until the above requirements are complied with no student will be allowed to participate in the duties and recitations of his class.

The student is advised to defer the purchase of drawing instruments and materials until he can have the direction of the professors in their selection.

Text-books and stationery can be purchased from the Quartermaster on good terms. The student is advised, however, to bring such scientific books as he may possess.

No fees are refunded unless a student leaves in good standing, through no fault of his own, and on the advice of the faculty.

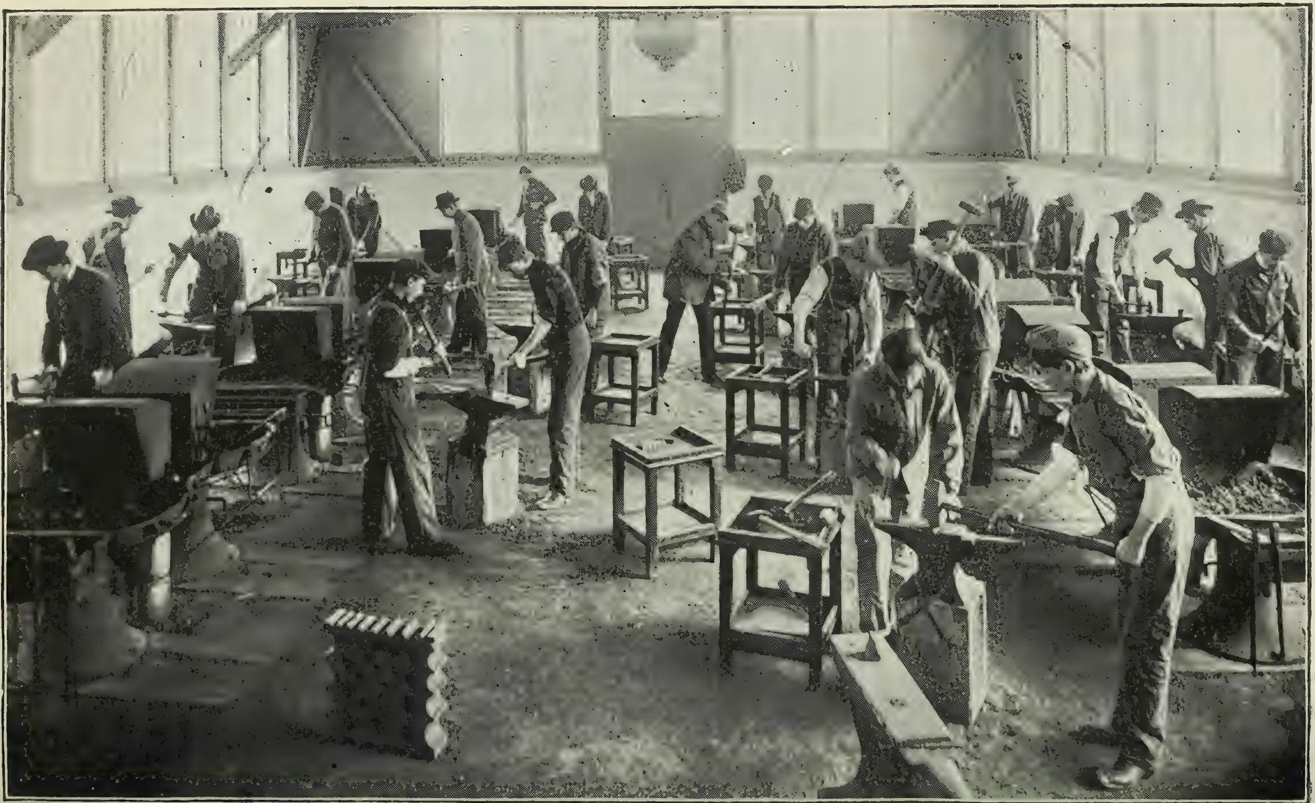
No fees are refunded to students who are required to leave for deficiency in shop or mill work or studies.

Approximate prices of text-books and instruments may be found on page 107.

DORMITORIES.

All students in the Apprentice and Sub-Apprentice classes who do not reside with their parents or guardians, are required to board in the school dormitories.

This regulation was passed by the Board of Trustees of the school April 2, 1902, after a careful examination of the advantages and protection afforded by the dormitories to students of the two younger classes. Students of the higher classes will be ac-



IN THE SMITH SHOP— DOWN DRAFT FORGES

commodated in the dormitories also, but their residence there is not compulsory.

BOARD AND EXPENSES.

The school is provided with dormitory accommodations for two hundred students. The rooms are well lighted and ventilated. Hot and cold shower-baths are accessible to all students, in a new and well-heated bathroom.

The price of board, including laundry, fuel and lights, is $13.50 per month, payable in advance.

Board is not refunded to students unless they leave through providential causes.

All students who desire places in the dormitories must write and secure them before reporting for duty, as the dormitories do not accomodate more than one-half of the students who are in the institution.

Students who board in the dormitories are required to furnish the following articles: One pillow, three pillow-cases, four sheets, blankets or comforts, six towels, and any other small and portable articles needed about their rooms. The articles named should be brought from home. The school furnishes with each room: Beds (single three-quarter width), mattresses, springs, wardrobe or closet, washstand, bureau, and table. It is intended that only two students shall occupy one room.

With the information given above, students may easily come to Atlanta without preliminary correspondence and be located, at least temporarily, a few hours after their arrival.

Every member of the Apprentice class must provide himself with gymnasium suit and shoes, the total cost of which is about $2.00.

Each student should have two suits of overalls, costing about $1.00 each.

For prices of books, stationery, drawing materials and drawing instruments, see pages 107-9.

The cost of books, etc., in the Apprentice year is large on account of the purchase of drawing instruments.

DISCIPLINE AND DORMITORY REGULATIONS.

The students of the school have a record for good conduct, unsurpassed by any corps in the country.

They are required to obey but few regulations, the authorities bearing in mind the development and best interest of the student body.

Every man is expected to conduct himself as a gentleman. When he fails in this, and convinces the authorities that he has not come to work, his parents are requested to withdraw him.

No student will be permitted to room in the dormitories who has not signed a pledge to refrain from disorder and obey regulations.

Special Textile students and students having but few lessons to prepare will not be admitted to the dormitories.

LEAVES AND PERMITS.

(1) Students must not leave the school property without permission, except during hours designated by special regulations.

(2) Requests for permission to be off limits must be submitted in writing to the Professor in charge before 8:00 a. m., except on Sundays, then before 9:00 a. m., who will pass upon them and return through the mail.

(3) Students will state in their requests for leave of absence the hours desired for departure and return, and where they wish to go, giving name and street number.

(4) Students having leaves of absence must report their depart-

ure and return to the Professor in charge, who will record times of same on student's written permit.

(5) No one has authority to grant leaves of absence except the President, Professor in charge, or some one delegated with authority to act in their absence. But any professor or officer of the institution may record time of departure and return.

(6) Leaving before the hour for departure, or returning after the leave expires, will be punished by confinement, expulsion from the dormitory, or dismissal from the school.

(7) No leaves will be granted for theaters, or during the week for religious exercises, without written requests from students' parents.

(8) Getting a leave of absence for one place and then going to another, will be regarded as a false statement, and is punishable by expulsion from the school.

(9) Students will be granted leave of absence on Saturdays from conclusion of inspection to call to quarters, and on Sundays from breakfast to call to quarters.

(10) Students will be allowed to exercise on their wheels during vacant periods without permits. Limits being on North avenue from Plum to Peachtree, and on Peachtree from Ellis street, north.

(11) Students who dismount from their wheels, for calling, walking, or other purposes, except in cases of emergency, while taking advantage of the above regulation, will be dismissed from the school.

(12) Students attending fraternity meetings must delegate some man from each fraternity, who will be held responsible for the men going, attending and coming from the place of meeting, and who shall report departure, hour of adjournment, and return to the Professor in charge.

(13) Any student absenting himself from the Dormitory without complying with the above regulations will be suspended from the institution.

INSPECTION AND BELLS.

(1) The time at the Dormitory will be regulated by the clock in the Academic building.

(2) The rising-bell will ring in the hall at 6:15 a. m., daily, except on Sunday.

(3) Rooms must be in order, beds made up, floors swept, and students dressed at 6:40 a. m., when the inspection bell rings.

(4) The bell for breakfast will ring at 6:45 a. m., except on Sunday, when the rising, inspection and breakfast bells will ring one hour later.

(5) At 7 p. m. the bell for call to quarters will ring. Then all students must go to their rooms for study.

(6) Five minutes after call to quarters there will be an inspection, after which no student will be allowed to visit without special permission from Professor in charge. Visiting will be allowed on Friday and Saturday nights, after the usual inspection.

(7) Orderlies will be held responsible for any undue noise or disorder in rooms during study hours.

(8) At 10:15 p. m. the bell for retiring will ring, and all lights must be out and students in bed at the second bell, which will ring at 10:30.

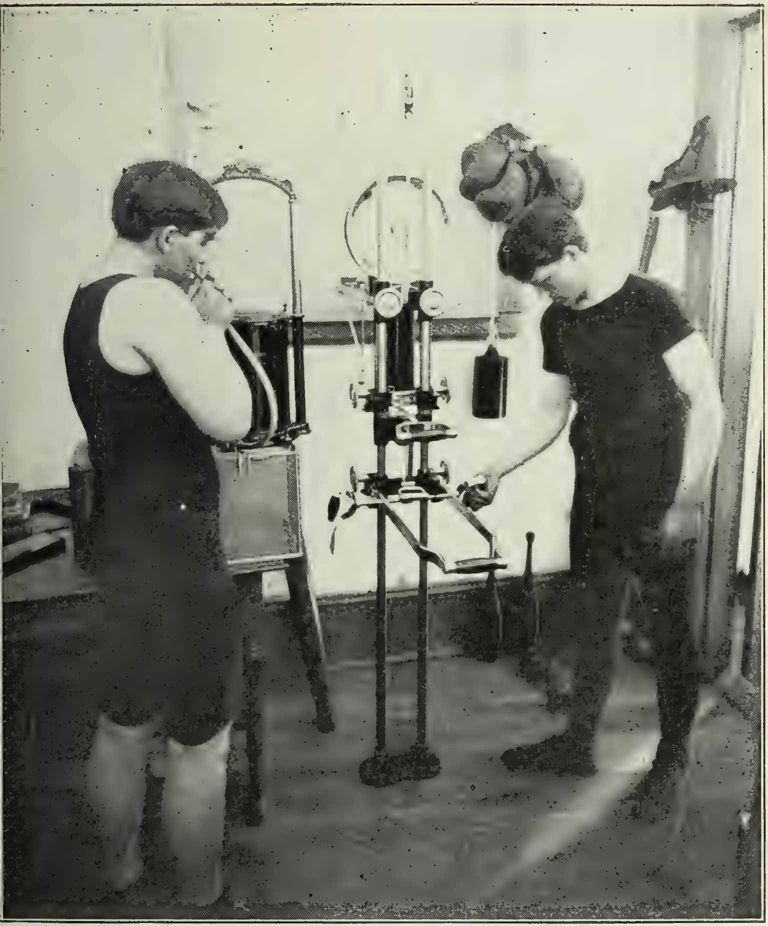
(9) The general weekly inspection will be held every Saturday at 9 a. m., at which all students not on duty are required to be present.

MISCELLANEOUS.

(1) Students found with playing cards in their possession or in their rooms will be suspended from the school.

(2) Any student found with intoxicating liquors in his possession will be suspended from the school. In case such liquors are found in any room in the Dormitory, the Orderly of the room will be held responsible.

(3) Students found with fire-arms in their possession will be suspended from the school.



GYMNASIUM OFFICE, SHOWING SPIROMETER AND DYNAMOMETER.

The latter records over 100 strength tests and is the only one south of the large Universities.

(4) Fire-arms should be deposited with the Professor in charge.

(5) Students will not be allowed to use bath-room after call to quarters, except on Fridays and Saturdays.

(6) Rooms must be kept in order by students, room-mates taking alternate weeks in performance of this duty. The student whose week it is to keep the room in order shall be known as Orderly and shall have his name posted on the door as such.

(7) No student will be excused from his duties on account of sickness unless his name is reported on the sick list by the division inspector to the Professor in charge, who will summon a physician. A fee of $1 is charged for each visit of the physician. In case a student is taken sick during the day he shall report immediately to the President, or in his absence to the Professor in charge.

(8) Students must patronize the laundry.

(9) Any disorder in the mess-halls will be punished by expulsion from the Dormitory.

DEPARTMENT OF PHYSICAL CULTURE.

The educated man is he whose body, as well as mind, is the obedient servant of his will.

The gymnasium is a large, airy hall, seventy by forty feet, with a high ceiling permitting the use of flying rings and other swinging apparatus. Adjoining this are the Physical Director's office, bath-rooms, provided with hot and cold shower-baths, dressing-rooms, etc. The history of the past and present shows that the community which pays attention to the physical well-being of its members is the one which is most successful in all things. Greek History was made by the nation which paid especial attention to Physical Education. During the past year our Gymnasium has been refitted, old apparatus remodeled, and new apparatus of the most modern type added.

We are prepared to conduct this department upon the most scientific lines, and our outfit for physical examinations consists of a universal dynamometer, scales, callipers, spirometer, morphograph, measuring rod, etc., etc., and is surpassed by none in the country. Recognizing the fact that the student entering the Apprentice class is at the period when he is passing from boyhood to manhood, and that his future success in life is largely dependent upon a strong, healthy body, we have made a graded course in gymnastics compulsory for all members of this class.

Each member of the Apprentice class is required to report to the Director of Physical Culture, who will give him a thorough examination and prescribe the exercise he is to take.

In addition to the physical examination, an examination in light and heavy gymnastics is given at the beginning of the term, and each man placed in a squad according to the grade he makes.

Examinations are made at the end of each term, thus enabling any one who applies himself to pass to a higher grade. Each student in the Apprentice Class is required to supply himself with a gymnasium uniform and shoes at a cost of about two dollars.

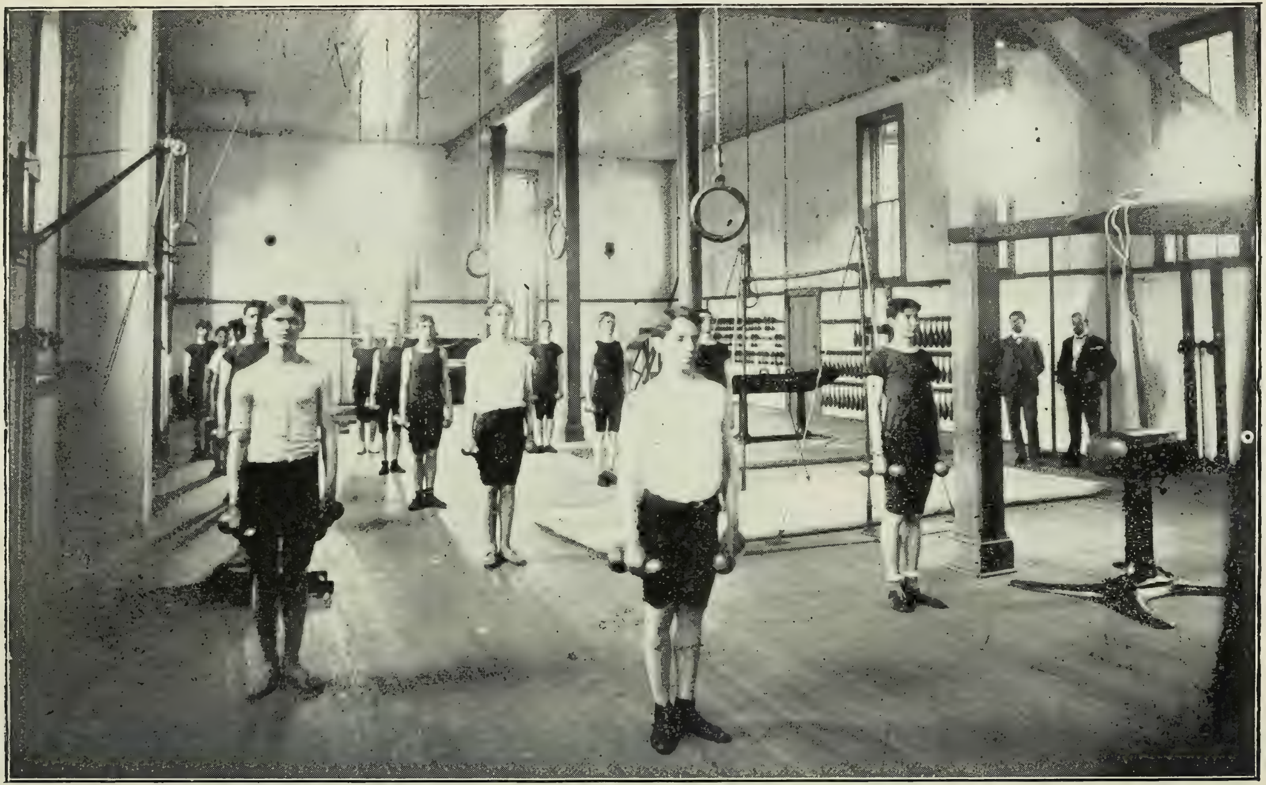
Three principles should form the foundation of any system of gymnastics:

1. Recreational, because this is the part of the work which renews and strengthens all the vital processes of life and sends the man out with a bright eye, a more elastic step and a stronger body to take up the burden of life.

2. Educational. This part educates the body and mind that they may co-ordinate and work together, thus doing a maximum amount of work with a minimum expenditure of energy.

3. Medical. This branch of the work enables the examiner to ascertain the condition of the student, and if there is any departure from the normal to prescribe work which will correct it. Any student of the school can procure a thorough physical examination by making special arrangements with the Director.

All students are encouraged to do individual work, and classes in advanced gymnastics will be formed and arrangements made for indoor winter meets.



CLASS IN THE GYMNASIUM.

ATHLETICS.

A large field for the use of the students has just been finished, and is laid out with running track, jumping and pole vaulting paths, circles for throwing the hammer, etc., etc.

All intercollegiate games, such as football, baseball, tennis, etc., are encouraged by the faculty.

SPECIMEN EXAMINATION FOR ENTRANCE.

FOR THE SUB-APPRENTICE CLASS AND SPECIAL TEXTILE COURSE, PAGES 68, 82.

Arithmetic.

1. If 5 horses will consume 8 bu. 1 pk. 6 qt. of oats in 6 days, what quantity of oats will 7 horses consume in 11 days?

2. In what proportions shall sugars worth respectively 6, 7 1-2, 8 1-2 and 9 cents a pound be taken to form a mixture worth 7 cents a pound?

3. If a merchant sells goods for three-fourths of their cost, what per cent. does he loose?

4. Divide 3.15 by 0.075, and extract the cube root of the quotient to two decimal places.

5. Find the fourth root of 1874161.

6. Find the number of acres in a triangular field whose base is 20.8 ch. and altitude 14.5 ch.

7. A pole was broken 26 ft. from the bottom, and fell so that the end struck 19 ft. 6 in. from the foot; find the length of the pole.

8. Find the capacity in gallons of a cylindrical cistern, measuring 16ft. across and 15ft. deep.

9. Divide 52 into such parts that 1-5 of one part shall equal 2-3 of the other.

10. On a map whose scale is 1-10 of an inch to a mile, what would be the area covered by a tract of land containing 720 square miles?

For the Apprentice Class.

Entrance Algebra, September 30, 1898.

1. Given $x + 2y = 20$, $3z - x = 2$ and $2x + z = 10$; find x, y and z.

2. If the numerator of a certain fraction be increased by 1 and the denominator be diminished by 1, the value of the fraction will be 1. If the numerator be increased by the denominator and the denominator be decreased by the numerator, the value of the fraction will be 4. Find the fraction.

3. (*a*) Rationalize the denominator of $\dfrac{1 - \sqrt{-1}}{\sqrt{-1} + \sqrt{-2}}$.

(*b*) Simplify $\sqrt[3]{a^{15}b^2} \div \sqrt{a^6b}$.

4. Find:

$\sqrt[6]{64a^6 - 192a^5 + 240a^4 - 160^3 + 60a^2 - 12a + 1}$ and $\sqrt{1\frac{3}{8}}$.

5. (*a*) Find the equation whose roots are 0, 1, 2, 3.

(*b*) Given $\dfrac{x + 6}{3(3 + x)} = \dfrac{1}{3 + 2x}$; find values of x.

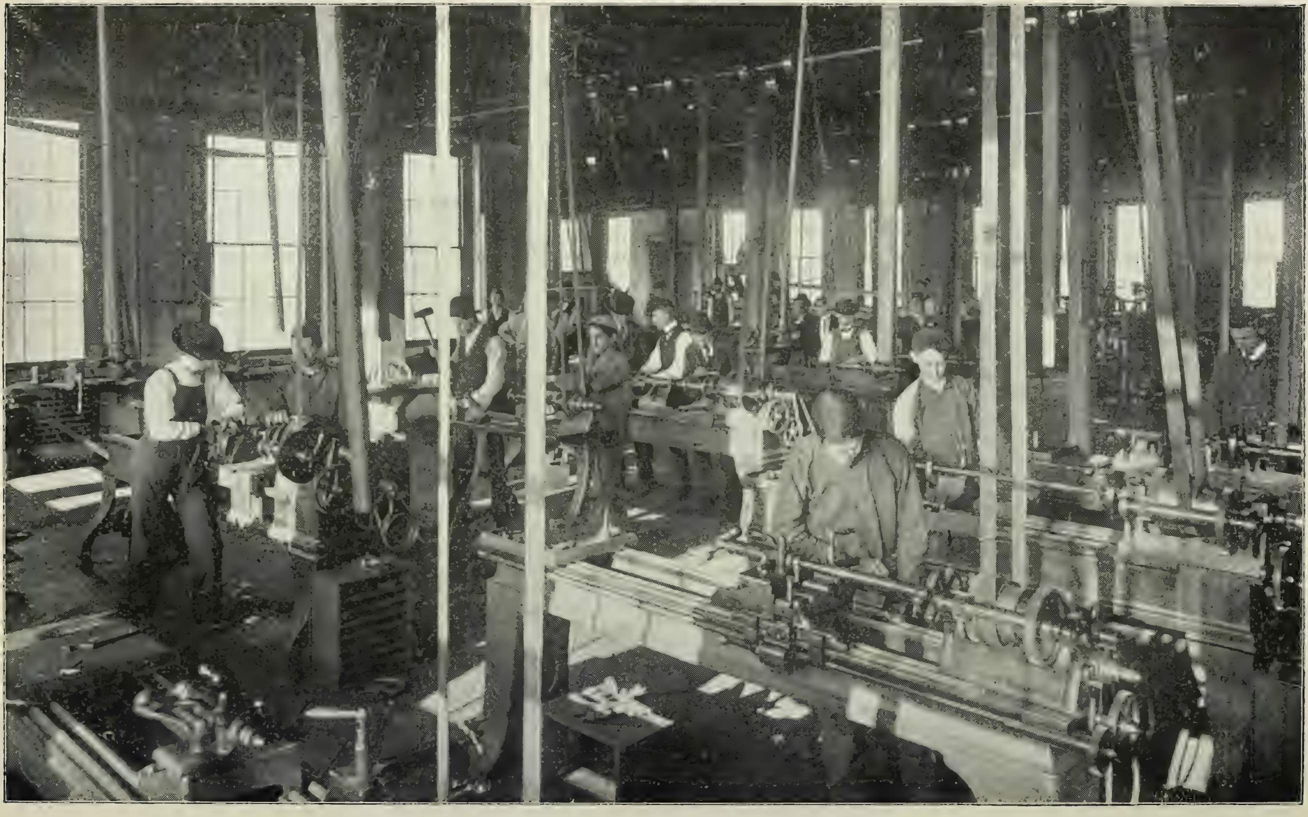
6. Find the number which added to its square root will make 210.

Entrance Geometry (to Apprentice).

Prove the following:

1. If a straight line drawn parallel to the base of a triangle bisects one of its sides, it bisects the other side, and is equal to one-half of the base.

2. An angle formed by two secants which meet without a circumference is measured by one-half the difference of the intercepted arcs.



THE MACHINE SHOP.

3. If in a right triangle a perpendicular is drawn from the vertex of the right angle to the hypothenuse, the perpendicular is a mean proportional between the segments of the hypothenuse.

4. If from a point without a circle a secant and a tangent are drawn, the tangent is a mean proportional between the whole secant and the external segment.

5. In an oblique triangle the square upon the side opposite an acute angle is equivalent to the sum of the squares upon the other two sides minus twice the rectangle formed by one of these sides and the projection of the other upon that side.

6. A circle is equivalent to one-half the rectangle formed by its circumference and radius.

Entrance English (to Apprentice).

1. Mention and define the parts of speech; define a phrase; a clause; a sentence.

2. Classify and define nouns according to form and use; what is a predicate nominative? and appositive? an adverbial objective?

3. In the following sentences parse the nouns: (a) The earth is the Lord's; (b) Time makes the worst enemies friends; (c) Necker, financial minister to Louis XVI., was a native of Geneva; (d) Every why has a wherefore; (e) O solitude! where are thy charms?

4. Define the five classes of pronouns, and mention the pronouns under each class. Parse the pronouns in the following sentences: (a) Who steals my purse, steals trash; (b) In this, 'tis God directs; in that, 'tis man; (c) He that can have patience, can have what he will.

5. Give the four classes of adjectives and their subdivisions, where any. Parse the adjectives in the following sentences: (a) Every third sentence is an exclamation of delightful surprise; (b) This boast of thine is vain; (c) The less you have to do with fire-arms the better.

6. Give the classes of verbs according to use; for what are verbs inflected? Define infinitives and participles. Inflect in full the verbs row, give, be.

7. Parse the verbs in the following sentences: (a) Think of the dangers to which he was exposed, and the privations which he must have suffered; (b) Do you suppose he forgets or ever can forget? (c) If you would learn the value of money, go and try to borrow some.

8. Give the five classes of adverbs; give the three classes according to form. Parse the adverbs: It is certainly true that very few birds of richly-colored plumage are found here now.

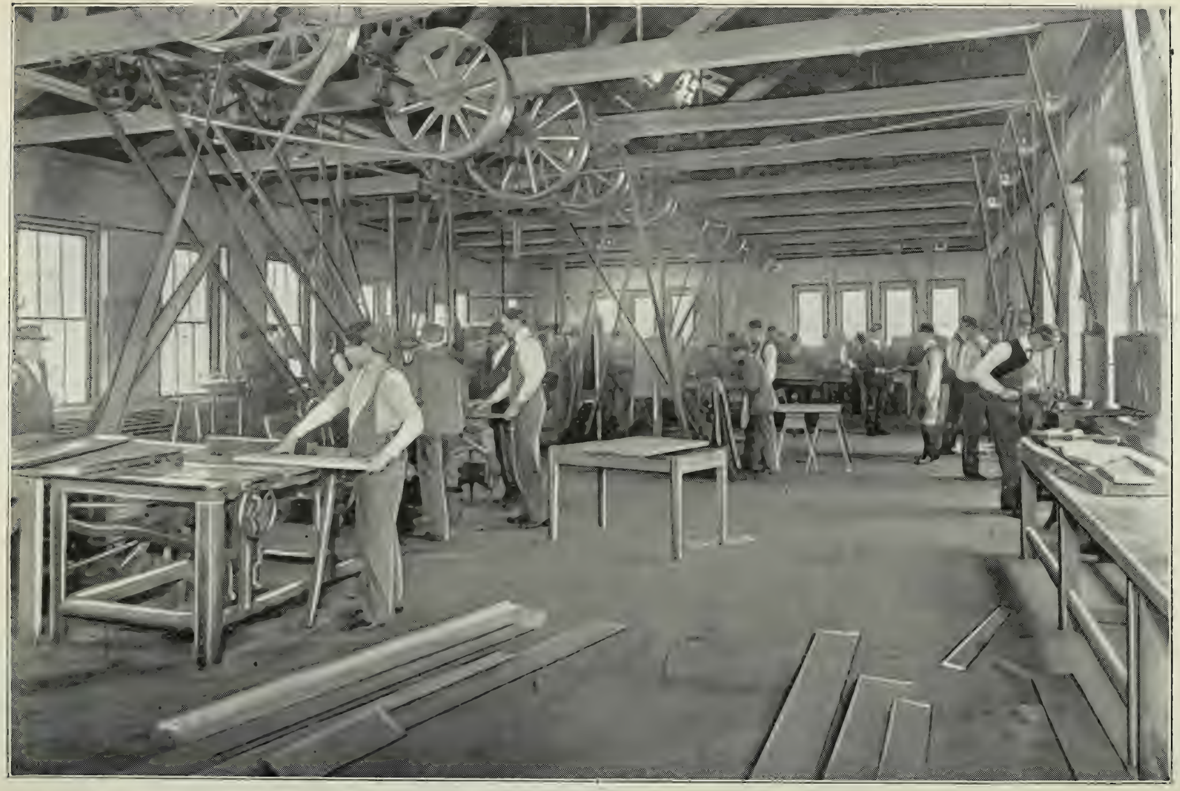
9. Parse the prepositions: And oft we trod a waste of pearly sands, spotted with rosy shells, and thence looked in at caverns of the sea, whose rock-roofed halls lay in blue twilight.

10. Parse the infinitives and participles: Many of the afflicted, having lost faith in their physicians, came to these celebrated springs, hoping to be healed.

11. Analyze the following sentences: (a) The army of the queen meant to besiege us; (b) He wrought the castle much annoy; (c) Hope springs eternal in the human breast; (d) Tarry till he come.

Entrance to Higher Classes.

Applicants for admission to higher classes must stand examinations in subjects passed over by the class the previous year. See Course of Study.



MACHINE WORK IN WOOD SHOP.

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TEXT-BOOKS.

The following list of text-books will probably be used next year. Those marked * may be changed:

Sub-Apprentice Class.

Hall's Elements of Algebra	$ 1 00
Milne's Geometry	1 25
Whitney-Lockwood English Grammar	60
Maxwell Smith's Writing in English	
Penniman's Common Words Difficult to Spell	

Apprentice Class.

Hall and Knight's Revised Algebra	$ 1 00
Milne's Geometry	1 25
Lock's Trigonometry (Elements) with Log. Tables	1 40
Lewis' Second Manual of Composition	
Seeman's Classical Mythology	
Colby's General History	
Penniman's Spelling Book	
Tracey's Mechanical Drawing	1 80
*Gage's "Elements of Physics" (Revised)	1 10
Remson's "Introduction to the Study of Chemistry" (Briefer Course)	1 12
Descriptive Geometry	
Drawing Instruments	$5 00 to 20 00
Average (good set)	14 03

Junior Class.

Hall and Knight's Revised College Algebra	$ 1 50
Pence and Ketchum's Surveying Manual	3 00
Tanner and Allen's Analytic Geometry	1 25
Painter's English Literature	
Parson's English Versification	
Various English Classics	
Gilbert's Test Spelling	
Carhart's University Physics, Vol. I	1 50
Carhart's University Physics, Vol. II	1 50
Remsen's Introduction to the Study of Chemistry (Briefer Course)	1 12

Georgia School of Technology.

Middle Class.

Taylor's Calculus (Revised)	$ 2 00
Walker's Political Economy	1 20
Bullock's Economics	—
Pattee's American Literature	—
Barr's Kinematics of Machinery	2 50
Various Texts of American Classics	—
Carharts University Physics, Vol. II	1 00
Noyes' "Qualitative Analysis"	80
Hiorns' "Iron and Steel Manufacture"	1 00

Mechanical Engineering, Middle Class,

Merriman's "Mechanics of Materials"	—
Merriman's "Hydraulics"	—

Electrical Engineering, Middle Class.

Sheldon's Dynamo Electric Machinery	—

Civil Engineering, Middle Class.

Searle's Field Engineering	—
Merriman's Hydraulics	4 00
*Warren's "Stereotomy"	2 50

Senior Class (Common to all Courses).

Texts on Shakespeare, Browning and Tennyson	—
†*Bowser's "Analytic Mechanics"	2 00

Mechanical Engineering (Senior).

Carpenter's "Experimental Engineering"	6 00
Holmes' "Steam Engine"	1 75
Ripper's "Steam Engine"	2 50
Halsey's "Valve Gears"	1 50
Foster's "Machine Design"	—
Unwin's "Machine Design"	1 50
Hiscox's "Gas Engines"	2 50

Electrical Engineering (Middle).

Dynamo Electric Machinery—S. P. Thompson	5 00

Electrical Egineering (Senior).

Electrical Power Transmission—S. Bell	2 50
Nichol's "Manual of Physics and Electricity"	3 25

"An Introduction to Electrical Machinery," by Ryan, Norris and Hoxie	—
Alternating Currents and Alternating Current Machinery—D. E. Jackson	3 50
Jackson's "Electromagnetism and Dynamo Machinery	2 25
Oudin's "Standard Polyphase Apparatus and Systems"	3 00
Telephone Lines and their properties—W. J. Hopkins	1 50
Elements of Electro-Chemistry—LeBlanc	1 50

Textile Engineering.

Fox's "The Mechanisms of Weaving"	—
Taggart's Vol. I., "Cotton Spinning"	—
Taggart's Vol. II., "Cotton Spinning"	—
Taggart's Vol. III., "Cotton Spinning"	—
Loney's "Elements of Statics"	—
Loney's "Elements of Dynamics"	—
Merriman's "Strength of Materials"	—
Wood & Stahl's "Mechanism"	—
Holmes's "Steam Engine"	—
Dyeing of Textile Fabrics—Hummel	—

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† Common to all Courses.

Civil Engineering.

"Modern Framed Structures"—Johnson	—
"Masonry Construction"—Baker	—
"Sewerage"—Folwell	—
"Water Works"—Folwell	—
"Highway Construction" ———	—

Engineering Chemistry.

Carbon Compounds—Appleton	—
Experiments in Organic Chemistry—Appleton	—
Outlines of Industrial Chemistry—Thorp	—

REGISTER OF GRADUATES.

Name, and County from which appointed.	Class.	Degree B.S. in	Occupation.
George G. Crawford Wilkinson.	'90	M.E.	Manager, National Department National Tube Company, comprising National Tube Works, National Rolling Mills, Monongahela Furnaces, Monongahela Steel Works, Boston Iron and Steel Works, Republic Iron Works, National Galvanizing Works, McKeesport, Pa., U. S. Steel Corporation.
Henry L. Smith.... Rockdale.	'90	M.E.	Superintendent Dalton Cotton Mills, Dalton, Ga.
Percy C, Brooks.... DeKalb.	'91	M.E.	General Manager Beloit Machine Mfg. Co., Beloit, Wis.
Julius L. DeGive... Fulton.	'91	M.E.	Electrician and Constructing Engineer of Grand Opera House, Atlanta, Ga.
W. H. Glenn....... Fulton.	'91	M.E.	Superintendent, Maintenance of Way, Georgia R'y & Electric Co., Atlanta, Ga.
J. D. Goldsmith.... Fulton.	'91	M.E.	Foreman Tool Room, L. & W. R. R. Shops, New Decatur, Ala.
J. H. Jones .... Fulton.	'91	M.E.	Assistant Engineer, New Soddy Coal Co., Soddy, Tenn.
J. A. McCrary ..... Coweta.	'91	M.E.	Moore & McCrary, Mechanical Engineers, English Am. Blg., Atlanta, Ga.
J. S. Moore........ Thomas.	'91	M.E.	Mechanical Engineer, Moore & McCrary, English American Blg., Atlanta, Ga.
C. M. Pritchett.... Bartow.	'91	M.E.	Designing Engineer, D. A. Tompkins Co., Charlotte, N. C.
C. E. Ard.......... Stewart.	'92	M.E.	Assistant in Mechanical Department, Mississippi A. & M. College.
J. W. Bridge ...... Fulton.	'92	M.E.	Superintendent Mining Co., Gainesville, Ga.
A. R. Colcord...... Dodge.	'92	M.E.	President Colcord-Williams Lumber Co., Atlanta, Ga.
E. W. Collins...... Cobb.	'92	M.E.	Superintendent Electrical Department, Dawson, Ga.
E. H. Davis........ Putnam.	'92	M.E.	Superintendent Electric Light and Water Plant, Griffin, Ga.

IN THE DYNAMO LABORATORY. TRACING ALTERNATING CURRENT CURVES BY INSTANTANEOUS

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REGISTER OF GRADUATES—Continued.

Name, and county from which appointed.	Class.	Degree B. S. in	Occupation.
C. E. Fairbanks.... DeKalb.	'92	M.E.	Electrical Engineer, Engineering Dept. New York and New Jersey Telephone Co., Brooklyn, N. Y.
George Freeman... Chatham.	'92	M.E.	With Georgia Car and Manufacturing Co., Savannah, Ga.
Wm. A. Hansell, Jr Fulton.	'92	M.E.	Superintendent American Chemical Co., Atlanta, Ga.
N. B. Hudson...... Rockdale.	'92	M.E.	With R. D. Cole Mfg. Co., Newnan, Ga.
Mark W. Johnson, Jr Fulton.	'92	M.E.	Assistant Master Mechanic, Tenn. Coal, Iron & Railway Co., Ensley, Ala.
C. B. Little........ Putnam.	'92	M.E.	Asst. Supt. and Mechanical Engineer Brownell Co., Engine and Boiler Manufacturers, Dayton, Ohio.
M. M. Pearson..... Tattnall.	'92	M.E.	Draughtsman, General Electric Co., Schenectady, N. Y.
J. G. Rossman..... Greene.	'92	M.E.	General Superintendent Georgia Electric Light Co., Atlanta, Ga.
T. F. Scully........ Fulton.	'92	M.E.	Deceased.
J. B. Sherard...... Jackson.	'92	M.E.	With Newport News Ship-building and Dry Dock Co., Newport News, Va.
W. P. Walthal..... Campbell.	'92	M.E.	With G. W. Adair Real Estate Co., Atlanta, Ga.
Z. Whitehurst..... Wilkinson.	'92	M.E.	Principal Tennille Institute, Tennille, Ga.
F. E. Whitney..... Richmond.	'92	M.E.	Member of S. M. Whitney Co., Cotton Factors, Augusta, Ga.
A. D. Black........ Floyd.	'93	M.E.	Asst. Engineer, District Engineer Corps, Dist. of Columbia, Washington, D. C.
E. E. Davis........ Chatham.	'93	M.E.	Electrical Engineer and Proprietor Davis Machine Shop, Savannah, Ga.
S. F. Jeter......... Fulton.	'93	M.E.	Mech. Engineer Mining Co., Cartersville, Ga.
Joe W. Little...... Fulton.	'93	M.E.	President of Carter & Gillespie Electric Co., Atlanta, Ga.

REGISTER OF GRADUATES—Continued.

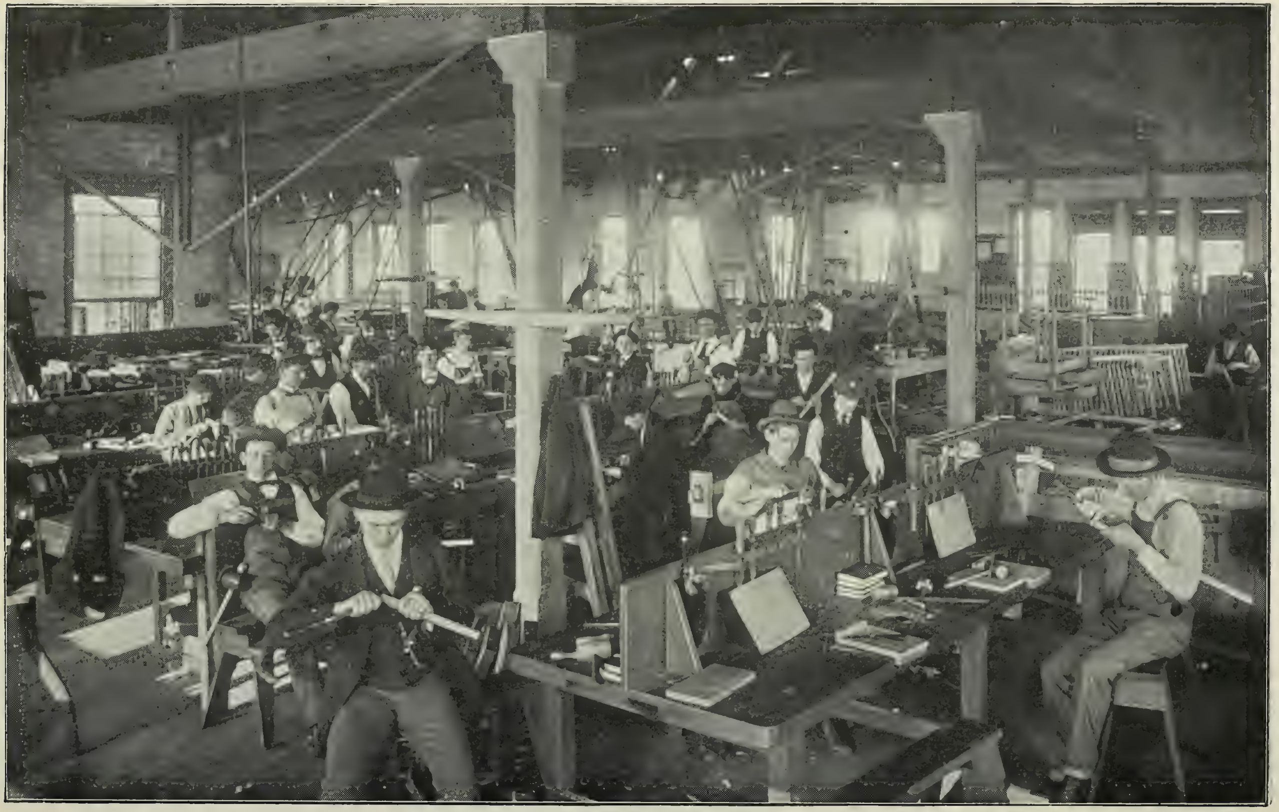
Name, and county from which appointed.	Class.	Degree B. S. in	Occupation.
H. L. Long, Jr..... Lee.	'93	M.E.	Doctor of Medicine, Leesburg.
M. W. McRae..... Bibb.	'93	M.E.	Architect and Mill Engineer, 215 Equitable Building, Atlanta, Ga.
H. H. Miles........ Fulton.	'93	M.E.	Contractor, 815 Austell Building, Atlanta, Ga.
A. R. Murrey...... Cobb.	'93	M.E.	Draughtsman for American Laundry Machine Co., Cincinnati, O.
W. J. Nalley....... Douglas.	'93	M.E.	Nalley & Nalley, Mechanical and Civil Engineers, Austell Building, Atlanta, Ga.
H. G. Nowell ...... Walton	'93	M.E.	Attorney at law, Monroe, Ga.
H. T. Phillips...... Fulton.	'93	M.E.	Treasurer of Phillips & Crew Co., Atlanta, Ga.
W. O. Connor...... Floyd.	'94	M.E.	Professor of Mathematics in the Iowa School for Deaf, Council Bluffs, Iowa.
D. E. Duggan...... Hancock.	'94	M.E.	Manager and Superintendent of the Cochran Cotton Mill, Cochran, Ga.
G. F. Forest .... Thomas	'94	M.E.	General Manager, Havana Copper Co., Havana, Cuba.
E. A. Greene....... Clay.	'94	M.E.	Lieutenant U. S. Marine Corps, Navy Yard, Washington, D. C.
T. Holmes .... McIntosh.	'94	M.E.	Manager, Moses & Holmes, lumbermen, Booth, Ala.
W. W. Hunter..... Wilkes.	'94	M.E.	Assistant Engineer to C. P. Barnett, Clifton Forge, Va.
E. B. Merry .... Columbia.	'94	M.E.	Senior member of Merry Bros. Lumber Co., Augusta office, Augusta, Ga.
P. Ogletree........ Meriwether.	'94	M.E.	Farming and stock raising, Zenith, Ga.
E. R. Whitney..... Richmond.	'94	M.E.	Electrical Engineer with the General Electrical Co., Lynn, Mass.
S. W. Allen........ Elbert.	'95	M.E.	Superintendent Elberton Light and Power Plant, Elberton, Ga.

REGISTER OF GRADUATES—Continued.

Name and County from which appointed.	Class.	Degree B S. in	Occupation.
J. A. Almond...... Elbert.	'95	M.E.	Mechanical Engineer and Machinist, Elberton, Ga.
H. W. Clark....... Richmond.	'95	M.E.	Treasurer Crown Milling Co., Augusta, Ga.
J. M. Goldsmith, Jr. Fulton.	'95	M.E.	Assistant Engineer Georgia Electric Light and Power Co., Atlanta, Ga.
G. H. Harrison, D.D. DeKalb.	'95	M.E.	Assistant Rector Christ's Church, Macon, Ga.
Wm. Jessup....... Fulton.	'95	M.E.	Draughtsman Geo. B. Sickels Co., Marble Works, Tate, Ga.
J. F. Lovette...... Fulton.	'95	M.E.	With Southern Express Co., Atlanta, Ga.
C. W. McCall...... Chatham.	'95	M.E.	Cashier for Hunter, Pierce & Battey, Cotton & Naval Stores, Savannah, Ga.
W. B. Nunnally.... Fulton.	'95	M.E.	Vice-President and General Manager Atlanta Knitting Mills, Atlanta, Ga.
T. F. Oetjen....... Richmond	'95	M.E.	Agent Ætna Life Insurance Co., Hartford, Conn., Augusta, Ga.
J. E. Smith........ Fulton.	'95	M.E.	Superintendent John M. Smith Carriage Factory, Atlanta, Ga.
R. N. Towers...... Floyd.	'95	M.E.	Assistant Mechanical Engineer American Cotton Oil Co., Waco, Tex.
G. Z. Echels...... DeKalb.	'96	M.E.	Paymaster U. S. Army, Havana, Cuba.
J. F. Gibbons...... Bartow.	'96	M.E.	Chemist for Pittsburgh Reduction Co., at Works, Bauxite, Ark.
H. R. Hart........ Fulton.	'96	M.E.	Deceased.
Chas. W. Hill..... Floyd.	'96	M.E.	Consulting Engineer and Superintendent of Erection, with Roane Iron Co., Rockwood, Tenn.
H. C. Reynolds.... Hancock.	'96	M.E.	Electrical Engineer with Carter & Gillespie, Atlanta, Ga.
T. P. Thompson ... Fulton.	'96	M.E.	Electrical Expert, Philadelphia Ship Building Co., Philadelphia, Pa.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B.S. in	Occupation.
R. B. Tufts........ Glynn.	'96	M.E.	Representing The Clark Pulverizer, 909 Prudential Building, Atlanta Office.
A. B. Whitney..... Richmond.	'96	M.E.	Deceased.
J. T. Wikle .... Fulton.	'96	M.E.	Assistant Superintendent Fulton Bag and Cotton Mills, Atlanta, Ga.
B. N. Wilson....... Fulton.	'96	M.E.	Adjunct Prof. Mechanical Engineering and Supt. Grounds and Buildings, Arkansas State University, Fayetteville, Ark.
R. V. Corput ...... DeKalb.	'97	M.E.	Lieutenant, Artillery Corps U. S. Army.
R. M. Crumley.... Fulton.	'97	M.E.	General Manager of Mill Supply Department Beck & Gregg, Atlanta, Ga.
F. C Furlow....... DeKalb.	'97	M.E.	Junior Professor Mechanical Engineering, in charge of Experimental Engineering, Georgia School of Technology.
E. F. Huff......... Bibb.	'97	M.E.	Auditor Armour Packing Company, Ft. Smith, Ark.
W. D. Nash........ Fulton.	'97	M.E.	Assistant Engineer for Southern Cotton Oil Co., Atlanta. Ga.
J. F. Ogletree, Jr.. Meriwether.	'97	M.E.	Farming, Stinson, Ga.
A. L. Reynolds.... Hancock.	'97	M.E.	Merchant, Mayfield, Ga.
E. L. Wight .... Dougherty.	'97	M.E.	Superintendent Albany Brick Company, Albany, Ga.
S. A. Bulloch......	'98	E.E.	With Foy Hardware Co., Eufaula, Ala.
J. C. Crawford.....	'98	E.E.	Deceased.
W. B. Everett	'98	E.E.	Farming, stock-raising and merchandising, Fish, Ga.
J. C. Garlington ...	'98	M.E.	Mechanical Engineer, Havana, Cuba.
J. O. Hall..........	'98	E.E.	Superintendent saw-mill, Belle Air, Ga.
R. H. Hart	'98	E.E.	Electrical Engineer for Walton Electric and Manufacturing Co., Atlanta, Ga.



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REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B.S. in	Occupation.
C. D. Honiker.....	'98	E.E.	With Fulton Bag and Cotton Mills, Atlanta, Ga.
H. H. Peek........	'98	M.E.	Engineer and Draughtsman for Lookout Boiler and Manufacturing Company, Chattanooga, Tenn.
B. W. Seawell. ...	'98	M.E.	Draughtsman for Lockwood, Green & Co., Boston, Mass.
L. R. Camp........ Coweta.	'99	M.E.	Erecting and Consulting Engineer, Atlantic Cotton Oil Co., Sumter, S. C.
T. M. Gibbes....... Cobb.	'99	E.E.	Electrician for Augusta Railway & Electric Co., Augusta, Ga.
J. M. Harby....... Sumter, S. C.	'99	M.E.	With G. H. Bushnell Press Co., Cotton Oil Machinery, Thompsonville, Conn.
P. Jackson......... Monroe.	'99	M.E.	Draughtsman and Designing and Erecting Engineer, J. S. Schofield's Sons & Co. new shops, Macon, Ga.
W. Leigh.......... Coweta.	'99	M.E.	Structural Engineer with Brown Hoisting Machine Co., Cleveland, O.
J. H. Lowe .... Fulton.	'99	M.E.	Contracting Engineer for Wm. Bensel Co., Atlanta, Ga.
P. Moses........... Sumter, S. C.	'99	M.E.	Engineering Dept. Southern Cotton Oil Co., Columbia, S. C.
C. D. Terrell.......	'99	M.E.	Superintendent Atlanta Plow Company, Atlanta, Ga.
F. C. Turner. ..... Troup.	'99	M.E.	Adjunct Professor of Drawing, Georgia School of Technology, Atlanta, Ga.
R. J. Binford ...... Decatur.	'00	E.E.	Draughtsman Engine Department, William R. Trigg Ship Building Co., and Professor of Mechanical Drawing, Y. M. C. A. Night School, Richmond, Va.
H. L. Freeman .... Richmond.	'00	E.E.	Ass't Professor of Mechanical Drawing, Georgia School of Technology, Atlanta, Ga.
C. S. Jones........ Chatham.	'00	M.E.	Chief Draughtsman, Birmingham Steel Rail Co., Birmingham, Ala.
R. L. Lamar....... Richmond.	'00	M.E.	Student, Cornell University, Ithica, N. Y.
S. L. Rich .... Fulton.	'00	E.E.	Student, Cornell University, Ithica, N. Y.
A. Skalowski ...... Richmond.	'00	E.E.	Chief Inspector and Electrician, Augusta Telephone and Electric Co., Augusta, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B.S. in	Occupation.
E. P. Williams..... White.	'00	M.E.	Draughtsman, Lackawana Iron and Steel Co., Buffalo, N. Y.
C. S. Wright....... Gordon.	'00	M.E.	Superintendent of Shops, Clemson College, Clemson, S. C.
W. R. Wynne...... Floyd.	'00	E.E.	Draughtsman and Travelling Inspector for Southern Bell Telephone and Telegraph Co., Atlanta, Ga.
J. P. Benjamin ... Fulton.	'01	M.E.	Draughtsman, Atlanta Machine Works, Atlanta, Ga.
E. W. Camp....... Coweta.	'01	T.E.	With Newnan Cotton Mills, Newnan, Ga.
D.O. Dougherty, Jr. Fulton.	'01	E.E,	Student, University of Georgia, Athens, Ga.
E. Gay............. Fulton.	'01	M.E.	Inspector, Special and Manufacturers' Risks, S. E. Tariff Ass'n, Atlanta, Ga.
W. J. Holman ..... Tennessee.	'01	E.E.	Foreman Machine Shop, Georgia Coal and Iron Co., Ferrobutte, Ga.
B. W. Holtzclaw... Houston.	'01	M.E.	Draughtsman, Scofield Iron Works, Macon, Ga.
W. D. Hughes..... Wilkinson.	'01	T.E.	
W. Langston....... Fulton.	'01	T.E.	With Howard & Bullough American Machine Co., Limited, Cotton Machinery. So. office 814–815 Empire Bldg., Atlanta, Ga.
A. S. Mead .... DeKalb.	'01	T.E.	Instructor in Designing, Textile Dep't, Ga. School of Technology Atlanta, Ga.
G. J. Merritt ...... Bibb.	'01	M.E.	Contracting Engineer for R. D. Cole, Manufacturing Co., 608 Prudential Building, Atlanta, Ga.
J. W. Moore....... Fulton.	'01	M.E.	Department Chemist Southern Cotton Oil Co., Atlanta, Ga.
W. Newsome ...... Troup.	'01	M.E.	Draughtsman, R. D. Cole Manufacturing Co., Newnan, Ga.
W. P. Sullivan..... Chatham.	'01	M.E.	Draughtsman, Plant System of Railways, Savannah, Ga.
L. C. Swords....... Morgan.	'01	T.E.	With Swift Cotton Mill, Elberton, Ga.

REGISTER OF GRADUATES—Continued.

Name, and county from which appointed.	Class.	Degree B. S. in	Occupation.
J. F. Towers....... Floyd.	'01	M.E.	Draughtsman, Tennessee Coal, Iron and Railway Co., Ensley, Ala.
J. S. Waterman ... Bibb.	'01	M.E.	Draughtsman, Chief Engineer's Office, Central of Georgia Ry., Savannah, Ga.
J. H. Williams..... Henry.	'01	M.E.	Draughtsman in Engine Department of Wm. R. Trigg Ship Building Co.

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The complete organization of the University of Georgia is as follows:

I. PARENT INSTITUTION AT ATHENS.

This institution is composed of the following schools and departments:

1. Franklin College (College of Arts); Established 1801; offering the Degree of Bachelor of Arts; having the following schools: Chemistry, Mathematics, Biology, Greek Language and Literature, History and Political Science, Latin Language and Literature, English Language and Teutonic Philology, Romance Languages, Physics and Astronomy, Metaphysics and Ethics, Rhetoric and English Literature, Pedagogy, Geology.

2. The Georgia State College of Agriculture and the Mechanic Arts (the College of Science) Established 1872; offering the Degree of Bachelor of Science; having the following schools: Civil Engineering, Electrical Engineering, Agriculture (full course and short winter course), Chemistry, Physics, Biology, Mathematics, Rhetoric and English Literature, English and German, Romance Languages, Latin, History and Political Science, Metaphysics and Ethics, Military Science, Geology.

3. The Graduate Schools, offering the Degrees of Master of Arts, Master of Science, Civil Engineer and Civil and Mining Engineer.

For catalogue of the above, apply to

Walter B. Hill, Chancellor,
Athens, Ga.

4. Law Department, Established in 1859; offering the degree of Bachelors of Laws.

For catalogue, apply to
Sylvanus Morris, Dean,
Athens, Ga.

II. NORTH GEORGIA AGRICULTURAL COLLEGE, DAHLONEGA.

Established 1871; offering the Degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Instruction, Bachelor of Business Science, having the following schools: Philosophy, Pedagogy, Courses in Science (including Agriculture), English Course, Latin, Mathematics, Greek, History and Economics, French, Department of Business, Military Department.

For catalogue, apply to
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Dahlonega, Ga.

III. THE MEDICAL COLLEGE OF GEORGIA, AUGUSTA, GA.

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Eugene Foster, M.D., Dean of Faculty,
Augusta, Ga.

IN THE PHYSICAL LABORATORY.

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JOHN CRERAR
LIBRARY

IV. GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

Established 1885. Offering the degrees of Bachelor of Science in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Textile Engineering, and in Engineering Chemistry, and having the following departments: Mathematics, Engineering Chemistry, Mechanical Engineering, English, Physics and Electrical Engineering, Civil Engineering.

For catalogue, apply to

LYMAN HALL, President,
Atlanta, Ga.

V. GEORGIA NORMAL AND INDUSTRIAL COLLEGE, (FOR GIRLS), MILLEDGEVILLE, GA.

Established 1889; offering the following Diplomas: Normal Diploma, Collegiate Diploma, and the following Certificates of Proficiency; in Bookkeeping, Stenography, Dressmaking, Freehand Drawing; organized in the following departments: Normal Department, Normal and Industrial Art, Collegiate Department, Physical Training, Industrial Department, Department of Domestic Science, Department of Music and Fine Art.

For catalogue, apply to J. HARRIS CHAPPELL, President,
Milledgeville, Ga.

VI. STATE NORMAL SCHOOL, ATHENS, GA. (CO-EDUCATIONAL).

Established 1891; having the following courses: Common School Course (one year), Graduate Course (three years); including the following schools: Literature, English, Elementary Science, Mathematics, History and Geography, Geography, Latin, Art Education and Manual Training, Penmanship, Psychology, Pedagogy, Domestic Science.

For catalogue, apply to E. C. BRANSON, President,
Athens, Ga.

VII. GEORGIA INDUSTRIAL COLLEGE FOR COLORED YOUTHS, AT COLLEGE NEAR SAVANNAH, GA.

Established 1890, and organized in the following schools: English, Pedagogy, Mathematics, Science, Agriculture, Manual Training (including Mechanical Drawing, Woodworking and Ironworking); Department of Trades (Carpentry, Blacksmithing, Masonry, Painting, Tailoring, Shoemaking, Sewing).

For catalogue, apply to R. R. WRIGHT, President,
College, Ga.

Summary of Students in the University Organization.

(*a*) OF COLLEGE GRADE:

In Franklin College	123
In State College of Agriculture and M. A	152
In Graduate Schools	5
In North Georgia Agricultural College	155
In School of Technology (including Sub-Apprentices)	431
In Normal and Industrial College for Girls	378
In Industrial College for Colored Youths	26
In State Normal School (including the short and full terms)	602
Total	1,872

(*b*) IN PREPARATORY DEPARTMENTS:

In Industrial College for Colored Youths	517
In Norman and Industrial College	70
In State Normal School	71
Total	658

(*c*) IN PROFESSIONAL SCHOOLS:

In the Law Department	32
In the Medical Department	115
Total	147

RECAPITULATION.

Total Students of College Grade	1,872
Total Students Professional Schools	147
Total Students Preparatory Department	658
Grand Total	2,677

For catalogues of the several institutions above mentioned, address the Presidents whose names are given above; for catalogue of the entire University organization, address WALTER B. HILL, Chancellor,
Athens, Ga.

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VOL. I. No. VIII.

THE GEORGIA SCHOOL OF TECHNOLOGY

MECHANICAL ENGINEERING
ELECTRICAL ENGINEERING
CIVIL ENGINEERING
TEXTILE ENGINEERING
ENGINEERING CHEMISTRY

1902-1903

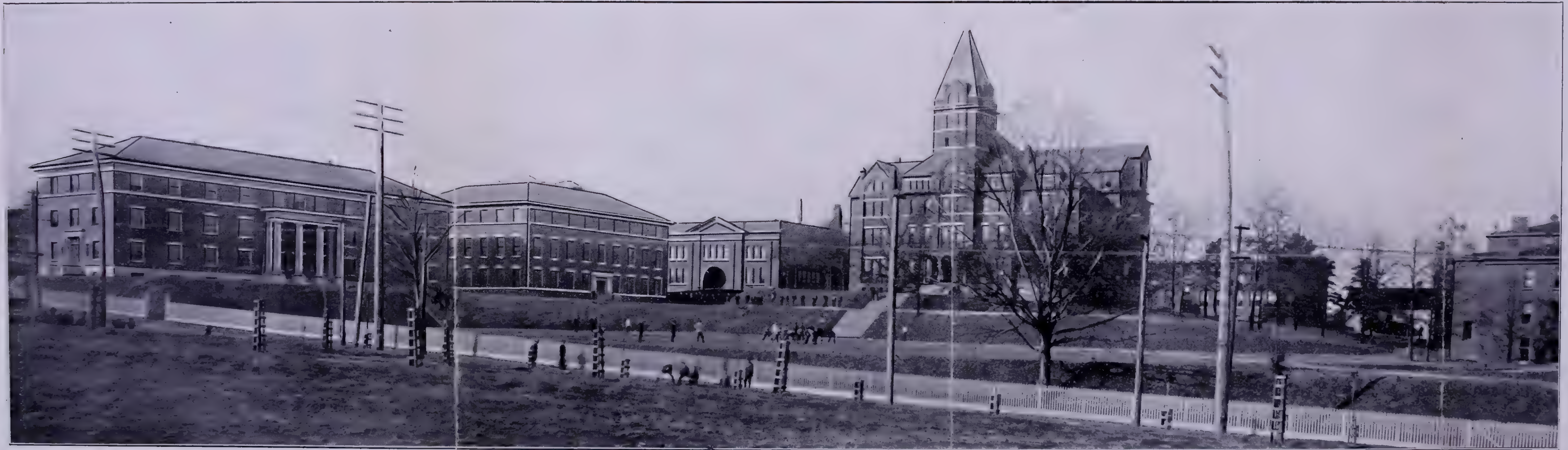
PUBLISHED QUARTERLY
BY
THE GEORGIA SCHOOL OF TECHNOLOGY
OFFICE AT THE SCHOOL
ATLANTA, GEORGIA
APRIL, 1903.

Entered at the Post-office at Atlanta, Ga., and admitted for transmission through the mails as Second-class Matter.

ANNUAL ANNOUNCEMENT

ACADEMIC B
G, TEXTILE EN
ECHNOLOGY,

E.



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MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING, CIVIL ENGINEERING, TEXTILE ENGINEERING, ENGINEERING CHEMISTRY.

CAMPUS AND BUILDINGS, GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

ANNUAL ANNOUNCEMENT

OF THE

GEORGIA SCHOOL OF TECHNOLOGY

A SCHOOL OF MECHANICAL, ELECTRICAL, CIVIL AND TEXTILE ENGINEERING, AND ENGINEERING CHEMISTRY, A DEPARTMENT OF THE UNIVERSITY OF GEORGIA.

ATLANTA, GA.

ORGANIZED 1888.

1902-1903.

ATLANTA, GEORGIA.
THE FRANKLIN PRINTING AND PUBLISHING CO.
1903.

TABULAR ALMANAC.

1902

JULY

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1903

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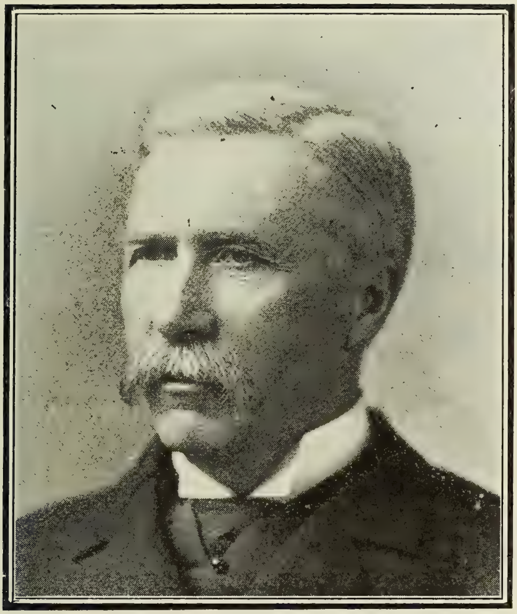

JAMES SWANN,
Died May 2d, 1903.

Mr. Swann's gifts to the school during his lifetime aggregated $22,500. His will provides an additional gift of $10,000. His death is a serious loss to the institution, for his strong advocacy of the needs of the South along industrial lines and his commanding position in business and finance were productive of more benefits than have accrued from any other one cause since the founding of the school.

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(12 weeks.)

Third Term.

Begins March 25, 1904; ends June 22, 1904.
(12 weeks.)

Commencement Day, Thursday, June 22, 1904.

By order of the Board of Trustees, the only holidays to be observed are Thanksgiving Day and Memorial Day (April 26th.)

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THE KNOWLES DORMITORY. DORMITORIES E AND F IN THE BACKGROUND.

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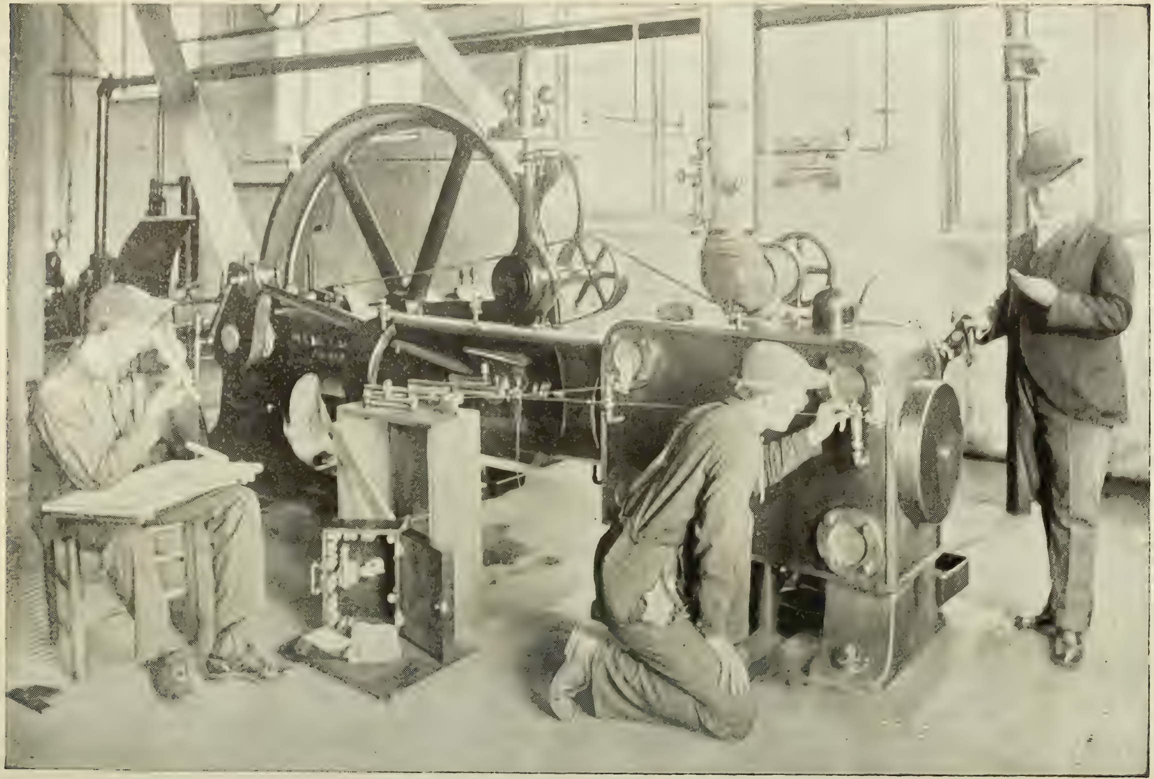

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H. V. BLACK, A.B., Ph.D.,
Junior Professor of Chemistry.

S. S. WALLACE, A.M.,
Junior Professor of English.

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Junior Professor of Mathematics.

FRANK C. TURNER, M.E.,
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GEO. H. LIGHT, A.M.,
Adjunct Professor of Mathematics.

J. O. BAGWELL, S.B.,
Adjunct Professor of English.

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In charge of Weaving Department.

C. W. MOORMAN,
Instructor in Carding and Spinning.

A. S. MEAD, T.E.,
Instructor in Designing.

HARRY HEBDEN,
Instructor in Weaving.

E. W. CAMP,
Instructor in Carding and Spinning.

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HORACE A. THOMPSON,
Foreman of Smith-shop.

T. O. JONES,
Foreman of Wood-shop.

WILLIAM VAN HOUTEN,
Foreman of Foundry.

H. H. NORMAN,
Instructor in Wood-shop.

W. F. GRIFFIN,
Instructor in Machine-shop.

W. S. ADAMSON,
Instructor in Machine-shop.

JOHN H. HENIKA,
Instructor in Wood-shop.

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William H. Emerson	175 Ashby Street.
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K. G. Matheson	Dormitory.
A. H. Ford	24 West North Avenue.
T. P. Branch	129 Juniper Street.
J. W. Bailey	385 West Peachtree Street.
J. N. G. Nesbit	45 Mills Street.
J. B. Edwards	305 Houston Street.
William Jennings	384 Spring Street.
C. K. Francis	31 E. Alexander Street.
H. V. Black	222 Washington Street.
S. S. Wallace	116 East Pine Street.
W. H. Ferguson	Ft. McPherson, Ga.
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A. B. Morton	116 West Peachtree Street.
Dr. W. A. Jackson, Jr	254 Spring Street.
Wm. G. Perry	56 West North Avenue.
H. L. Freeman	79 Luckie Street.
C. J. Kicklighter	50 Oglethorpe Avenue.
M. T. Hochstrasser	21 East Pine Street.
G. H. Light	302 Spring Street.
J. O. Bagwell	199 Alexander Street.
John Kniveton	196 West Kimball Street.
C. W. Moorman	56 West North Avenue.
A. S. Mead	Decatur, Ga.
Henry Hebden	19 Baltimore Block.
E. W. Camp	58 Cherry Street.
S. H. Wilson	58 Cherry Street.
Miss Madge Flynn	202 Jackson Street.
E. B. Martindale	87 Luckie Street.
Horace A. Thompson	299 Crew Street.
T. O. Jones	430 Luckie Street.
William Van Houten	211 West Pine Street.
H. H. Norman	312 West Fourth Street.
W. F. Griffin	200 West Kimball Street.
W. S. Adamson	148 Luckie Street.
J. H. Henika	451 East Georgia Avenue.

STUDENTS,

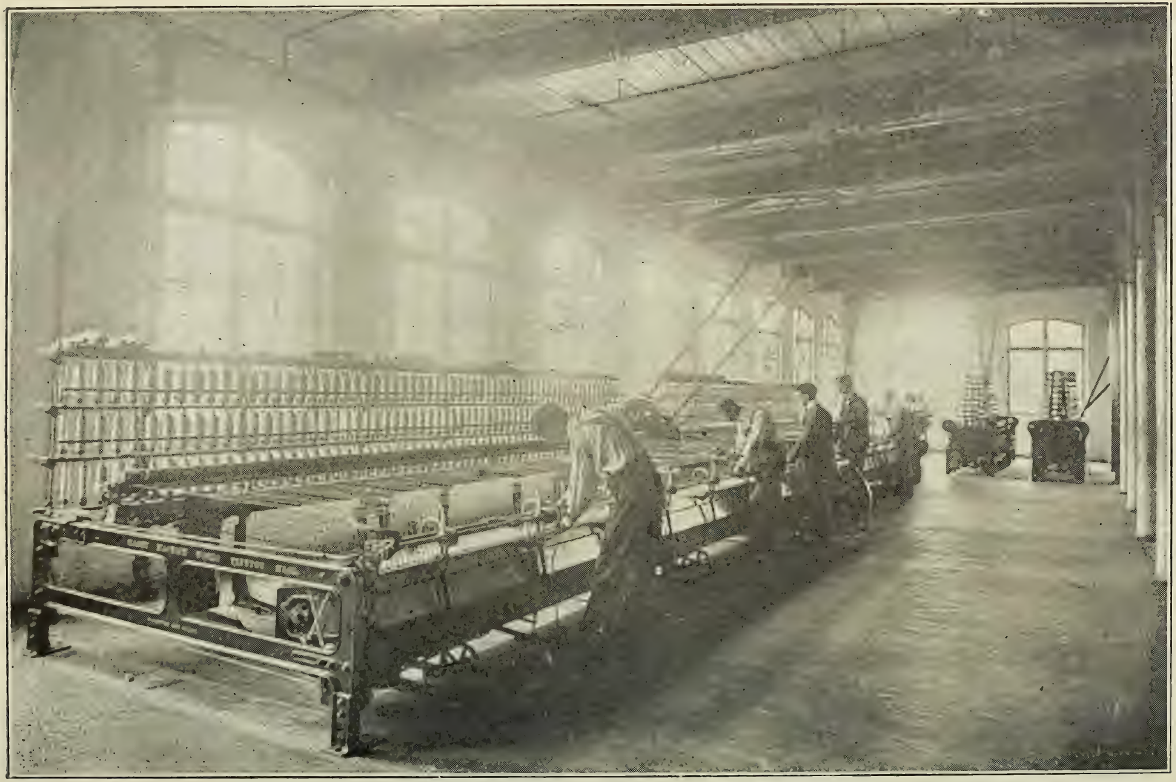
(T.) Textile; (M.) Mechanical; (E. C.) Engineering Chemistry; (C. E.) Civil Engineering. Students not thus designated are taking the regular courses in Mechanical, Electrical or Civil Engineering.

Senior Class (1903).

Andree, G. G. W. (C.E.)---Mich.
Atkinson, H. W, (T.)----Fulton.
Ball, H. O. (T.)----------Butts.
Bell, F. G., Jr., (T.)....Chatham.
Cannon, P. E. (T.)----Franklin.
Cochran, B. W. (E. E.).Campbell.
Cook, J. C. (E.)..Chattahoochee.
Dayton, A. O. (E.)------Florida.
Dodd, H. B. (E.)--------Bartow.
Emery, A. R. (M.)------Fulton.
Evans, H. O. (T.)--------Texas.
Fambrough, W. M. (E.) Thomas.
Freeman, M. L. (T.)--Richmond.
Furlow, F. (C.E.)-------Fulton.
Haas, A. (T.)-----------Fulton.
Hamilton, G. W. (T.)--Whitfield.
Hodnett,J.D.(T.).Massachusetts.
Howard, A. R. (T.)-----DeKalb.
Huff, C. C. (M.)---------Fulton.
Kamper, C. J. (C.E.)----Fulton.
Kennedy, A. D. (E.)----Fulton.
Kinnard, J. A. (M.)-----Coweta.
Lowndes, R. H. (M.)------S. C.
Markert, B. F. (M.)-----Pulaski.
Nelson, G. (E.)----------Fulton.
Patterson, E. C. (M.)----Fulton.
Peteet, P. M. (T.)------Morgan.
Rankin, W. S. (M.)---Chatham.
Roberts, J. E. (E.C.)------Tenn.
Seddon, E. A. J. (E.)----Fulton.
Shackleford, F. W. (E.) Ms'gee.
Solomon, L. M. (T.)-------Bibb.
Snowden, S. L. (M.)------Bibb.
Swain, F. C. (T.)-------Gordon.
Swanson, J. G. (T.)----Alabama.
Thompson, C. C. (E.)----Fulton.
Thrash, J. L. (E.)--Meriwether.
Vanwormer, R. B. (M.)--Fulton.
Vaughan, J. H. (M.)-----Fulton.
Wagner, C. F. (M.)-------Butts.
Whitner, J. A. (M.)-----Fulton.
Wilson, S. H. (E.C.)--Campbell.
Wilson, A. C. (E.)-------Fulton.
Wright, Paul (M.)-----Spalding.

Middle Class.

Acker, W. H. -----------Fulton.
Albury, U. E.-----------Florida.
Anderson, J. R---------Florida.
Blackburn, B. M.--------Fulton.
Brandon, W. W.-------Thomas.
Campbell, W. C.-------Muscogee.
Davenport, F. B.--------Fulton.
Davis, W. M. (T)-----------Bibb.
Dobbs, Z. T. (T)---------Fulton.
Edmonson, C. H. (T) Chattooga.



PRACTICE ON THE SPINNING MULE. LENGTH OF MACHINE 54 FEET.

THE JOHN CRERAR LIBRARY

Estes, J. W.	Clayton.
Furlow, S. D. (T)	Sumter.
Ginsberg, S. I. (T)	Fulton.
Glenn, G. R. (E.C.)	Fulton.
Hall, J. A. (E.C.)	DeKalb.
Harbour, G. A. (T)	Fulton.
Hartridge, A. L.	Chatham.
Hilliard, C. M. (E.C.)	Hart.
Hines, J. S. (T)	Bibb.
Holtzclaw, R. C. (E.C.)	Houston.
Hunnicutt, L. L.	Fulton.
Jones, C. A. (T)	Cobb.
Jordan, R. K. (T)	Jackson.
Lamar, T. B. (T)	Stewart.
Lambert, T. A.	Fulton.
Maddox, F. R. (E.C.)	Floyd.
Mathews, C. W. (T)	Talbot.
Mathewson, S. B. (T)	Richmond.
McCamy, C. C.	Whitfield.
McConnell, S.	Fulton.
Mitchell, R. A.	Fulton.
Montsalvatge, A.	Fulton.
Moore, B.	Clayton.
Moore, J. E. (T)	Sumter.
Morton, F. C.	Fulton.
Neeley, F. H.	Burke.
O'Keefe, J. E. (E.C.)	Fulton.
Peck, E. P.	Fulton.
Pringle, D. R.	Thomas.
Redwine, L. S.	Coweta.
Reid, I. H.	Taliafero.
Sanders, M. T. (T)	Greene.
Scales, H. J.	Fulton.
Shepherd, J.	DeKalb.
Smith, V. R. (T)	Fulton.
Stephens, P. V.	Glynn.
Strauss, H. M. (T)	Fulton.
Stribling, T. E. (T)	Cobb.
Strickland, N. H.	Gwinnett.
Strong, C. H.	Chatham.
Sullivan, W. L. (T)	Burke.
Sutker, S. (E. C.)	Chatham.
Thornton, L	Mississippi.
VanVorst, J. P.	Ware.
Whitner, H. F.	Fulton.
Wriggs, H. L.	Fulton.
Wright, A. H.	Gordon.

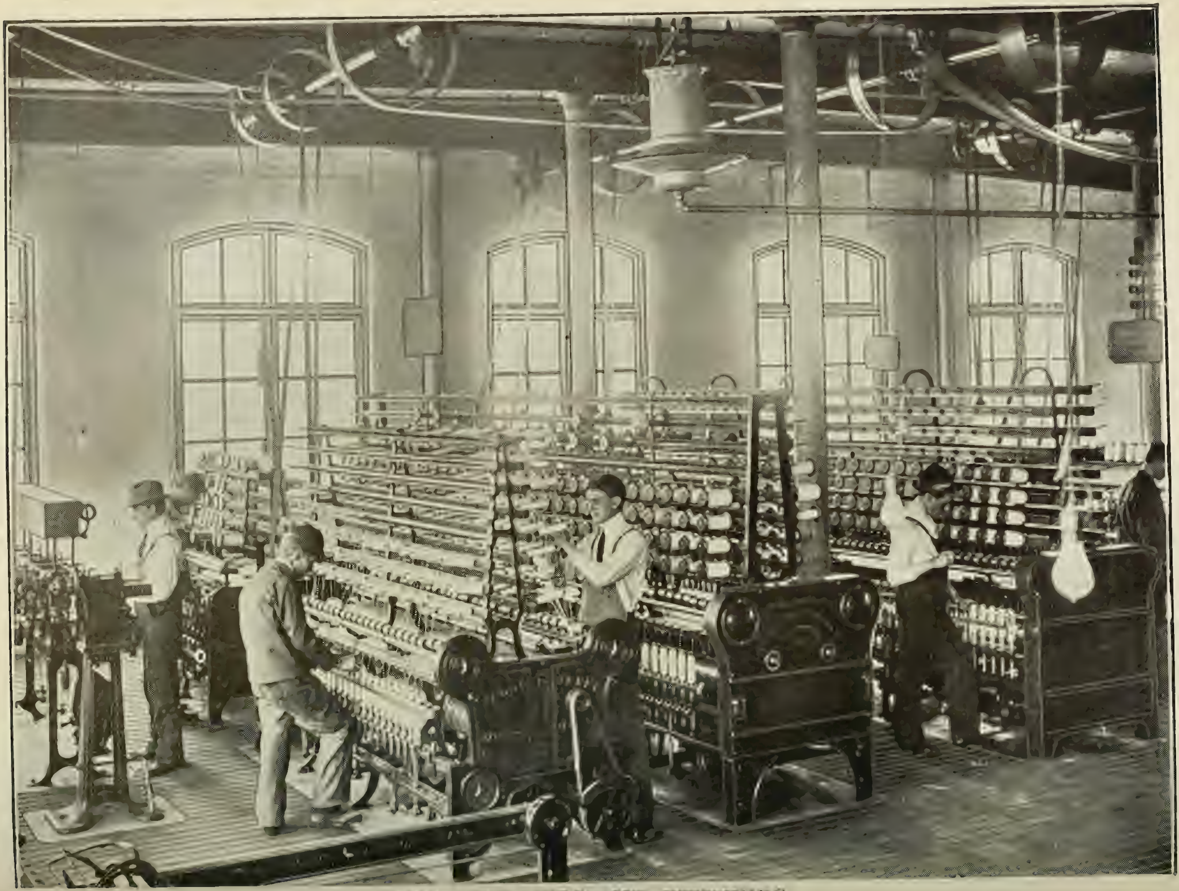
Junior Class.

Baird, L. G.	Fulton.
Basch, E. B.	Chatham.
Bayard, N. R.	Floyd.
Beane, J. S.	Habersham.
Beauchamp, W. L.	Pike.
Blackford, A. L.	Fulton.
Brogdon, J. S.	Gwinnett.
Burns, W. C.	Banks.
Bussey, E. H.	Randolph.
Callaway, H. I.	Bibb.
Collier, L. S.	Fulton.
Collins, J. D.	Fulton.
Cook, J. E.	Pulaski.
Corley, J. N.	Newton.
Cornwell, G. H.	Chatham.
Cowan, R. W.	Pulaski.
Crane, C. L.	DeKalb.
Daniels, L. C.	Fulton.
Dunn, E. C.	Florida.
Eagan, H. E.	Fulton.
Ellis, C. D.	Chatham.
Fain, H. G.	Fulton.
Fenn, F. L.	DeKalb.
Gann, G. K.	Fulton.
Garner, W. D.	Fulton.
Gregg, R.	Fulton.
Hartz, M. A.	Bibb.
Head, H. W.	Pike.
Hendrick, J. H.	Alabama.
Hills, G. B.	Fulton.
Hodgson, W. B.	Clarke.
Houseal, J. W.	Polk.
Howard, J. H.	Florida.
Inglis, W. L.	Florida.
Irish, J. S.	Fulton.
King, F. M.	Bartow.
Kroner, F. A.	Clarke.

Loyd, J. C.	Troup.
Mays, S. W.	Fulton.
McConnell, J. H.	Bartow.
McDaniel, V. J.	Rockdale.
McGhee, E. P.	Floyd.
McLarty, J. W.	Carroll.
Montgomery, W. F.	Floyd.
Morrison, W. F.	Dade.
Morton, T. W.	Clarke.
Pace, J. P.	Fulton.
Parker, G. W.	Richmond.
Paulsen, G. C.	Chatham.
Perry, A. E.	Texas.
Pringle, W. A.	Thomas.
Smith, F. H.	Fulton.
Smith, S. K.	Irwin.
Spence, J. R.	Mitchell.
Steele, B. W.	Fulton.
Stiles, W. H.	Bartow.
Stanton, T. D.	Walton.
Tatum, C. S.	Dade.
Thompson, P. W.	Fulton.
Walden, F. J.	Jefferson.
Walker, T. D.	Pulaski.
Watson, J. G.	Cobb.
Weeks, J. E.	Chatham.
Woodroof, J. L.	Tatnall.
Wynn, V. H.	Floyd.

Apprentice Class.

Anderson, J. H.	Newton.
Allen, J. K.	Putnam.
Allison, P.	Gordon.
Anderson, R. A.	Cobb.
Appleby, W. C.	Jackson.
Armitage, G.	Pierce.
Ash, R. R.	Clarke.
Barrett, R. L.	Whitfield.
Bagwell, W. N.	Gwinnett.
Barrett, J. B.	Virginia.
Baumgartner, C. J.	Glynn.
Beall, J. F.	Virginia.
Beck, L. H.	Spaulding.
Blair, G. E.	Cobb.
Boyd, G. M.	Bartow.
Bradford, H.	Polk.
Brandon, E. R.	Thomas.
Bristow, J. L.	Kentucky.
Brooks, C. J.	Muscogee.
Broomhead, E. B.	Fulton.
Brumby, J. R.	Cobb.
Butler, W. J.	Hall.
Calloway, O. D.	Morgan.
Carlton, L. D.	Green.
Carroll, E. W.	Florida.
Charlton, J. F.	Muscogee.
Chestney, B. R.	Bibb.
Clayton, L.	Bartow.
Coleman, G. M.	Clay.
Collier, J. Z.	Fulton.
Connally, P. H.	Paulding.
Cooksey, F. W.	Fulton.
Courtney, H. B.	Tatnall.
Cowan, W. H.	Newton.
Cox, C. H.	DeKalb.
Crawford, H. H.	Whitfield.
Dargan, J. T.	Fulton.
Davies, F. C.	Tennessee.
Davis, C. K.	Chatham.
Davis, C. G.	Florida.
Davis, G.	Newton.
Day, C. C.	Pickens.
Donaldson, C.	Fulton.
Dumas, W. C.	Hancock.
Edge, D.	Muscogee.
Edwards, A. M.	Baldwin.
Edwards, G. A.	Taliaferro.
Ellington, F. G.	Fulton.
Emerson, L. A.	South Carolina.
Epstein, E.	Fulton.
Fagan, F. J.	Fulton.
Farlinger, W. H.	Fulton.
Floyd, C. A.	Berrien.
Fowler, W. C.	Clarke.



CONE WINDERS AND TWISTERS.

THE
JOHN CRERAR
LIBRARY

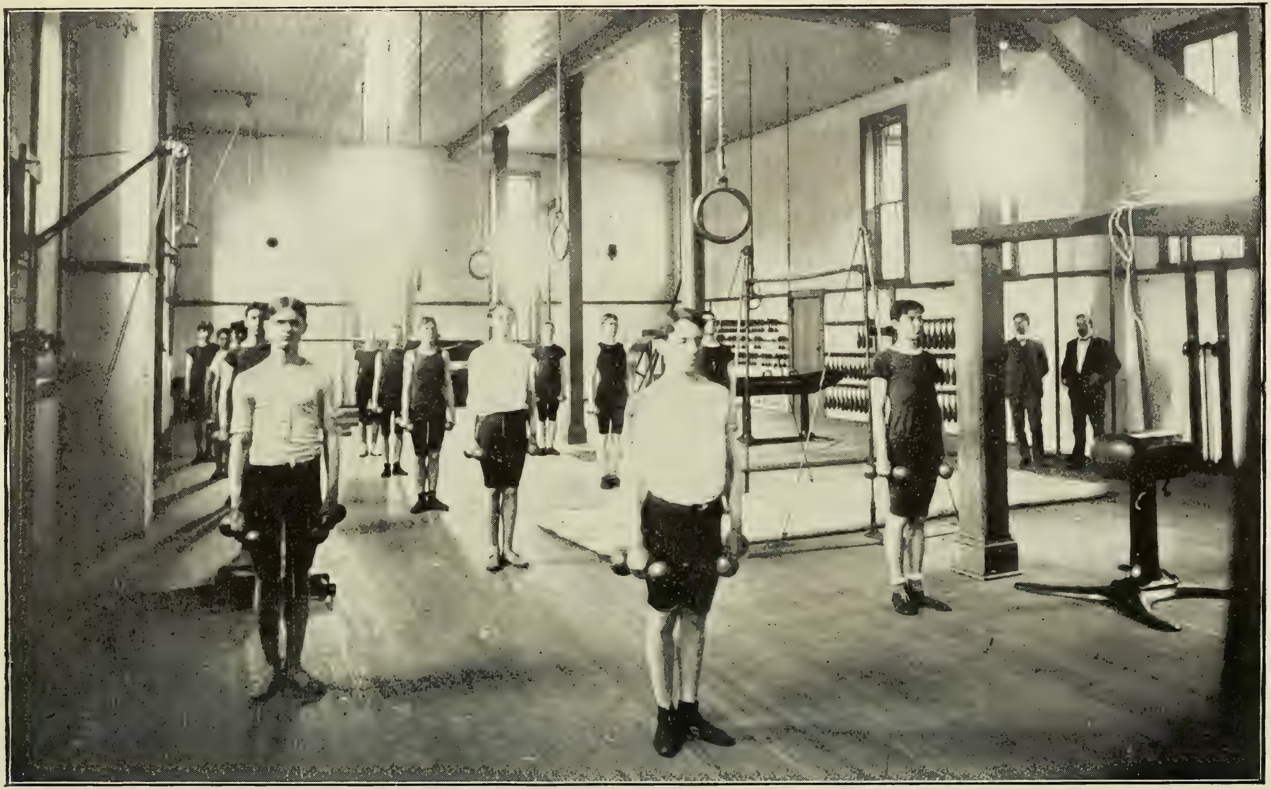
Freeman, H. ------------Coweta.
Frix, W. A.-------------Gordon.
Fuller, R. Q.------------Fulton.
Fuller, T. ---------------Glynn.
Geisler, T. W.-----------Green.
Gilbert, H. A.-------------Dade.
Gilbert, S. L.-----------Bartow.
Glenn, M. T.----------Rockdale.
Goodhart, C. R.------------N. Y.
Griffin, W. W.----------Florida.
Green, M. H.--------------Clay.
Green, W. B.------------Carroll.
Greene, H. G.------------Fulton.
Greer, L. B.-------------Fulton.
Gresham, L. G.------Tennessee.
Hager, G. A.----------Lumpkin.
Haines, G. -----------Chatham.
Hallman, J. F.-----------Fulton.
Harris, E. R.------------Henry.
Hartridge, E. M.------Chatham.
Haynes, L. ------------Florida.
Hazzard, J. P.---South Carolina.
Head, J. ------------Spaulding.
Henderson, R. C.-------Newton.
Henry, W. W.-----------Fulton.
Hertz, F. ------------------Bibb.
Heyward, E. T.--South Carolina.
Heyward, W. S.-------Chatham.
Hightower, C. R.--------Fulton.
Holt, V. P.--------------Gilmer.
Hughs, B. I.--------------Floyd.
Hull, H. H.--------------Clarke.
Hunt, R. A.----------------Polk.
Ingle, J. P.--------------Fulton.
Ingraham, R. E.------Emanuel.
Ingram, B. H.----------Putnam.
James, E. R. -----------DeKalb.
Jerger, J. -------------Thomas.
Johnson, W. T.----------Carroll.
Jones, J. C.----------------Bibb.
Kennerly, C. H.---------Florida.
King, W. R.-----Chattahoochee.
Lowe, G. O.-------------Fulton.
Lozier, I. N.--------Washington.

Lycett, E. --------------Fulton.
Marshall, D. S.----------Putnam.
Martin, C. C.----------Chatham.
Mastin, H. E.----------Alabama.
Mathews, W. J.----Montgomery.
Mathewson, J. H.-----Richmond.
McCord, C. M.-----------Fulton.
McGhee, H. A.------------Floyd.
McNeil, F. R.-----------Clayton.
McPhail, J. D.--------Muscogee.
Meckel, A. W.-----------Fulton.
Moore, J. W.------------Brooks.
Morris, J. A.------------Fulton.
Moses, M. -----------Muscogee.
Murphy, W. W.------------N. C.
Murray, C. F.--------------Cobb.
Newton, G. S.-------Habersham.
Newton, P. --------------Fulton.
Noyes, E. P.-----------Camden.
Orr, S. M.------------------S. C.
Parker, F. K.--------Tennessee.
Peters, W. --------------Fulton.
Platt, J. C.-----------Richmond.
Polak, A. V.-------------Fulton.
Poole, D. T.-----------Douglas.
Porter, R. B.-------------Texas.
Prather, A. ----------Muscogee.
Probst, J. F.-------------Fulton.
Purdom, A. B.-----------Pierce.
Raht, T. E.----------Tennessee.
Ralls, S. J.---------------Fulton.
Rice, P. B.------------Emanuel.
Richardson, F. H.----------Hart.
Roberts, E. E. G.---------Fulton.
Roberts, S. N.-----------Fulton.
Roberts, W. L.--------Lowndes.
Robinson, C. H----------Fulton.
Rogers, M. A.----------Laurens.
Rowan, F. M.-----------Bartow.
Sawyer, C. M.--------------Polk.
Schofield, D. L.------------Bibb.
Shaw, J. S.----------------Bibb.
Sims, H. H.-------------Wilkes.
Smith, C. Hall--------------Bibb.

Smith, D. D.	Decatur.
Smith, J. O.	Fulton.
Spratlin, F. M.	Fulton.
Starbuck, I. E.	Houston.
Strauss, L. I.	S. C.
Strickland, G. B.	Gwinnett.
Sweet, C. A.	Fulton.
Swint, C. D.	Coweta.
Thompson, L. M.	Fulton.
Thompson, W. H.	Worth.
Tidwell, R. F.	Fulton.
Tigner, C. H.	Meriwether.
Torras, F. J.	Glynn.
Vaughan, H. R.	Fulton.
Wallace, J. C.	Morgan.
Warfield, W.	Chatham.
Wells, A.	Texas.
Whitner, C. S.	Fulton.
Wilkinson, H. K.	Lowndes.
Winkler, A. E.	Fulton.
Winship, G.	Fulton.
Witman, J. M.	Bibb.
Wood, S. M.	Floyd.
Woolfolk, A. R.	Fulton.

Sub-Apprentice Class.

Adair, F.	Fulton.
Adler, B.	Alabama.
Adams, W. H.	Fulton.
Altmayer, M.	Bibb.
Anderson, R.	Monroe.
Asbury, H. S.	Habersham.
Baker, C. A.	Fulton.
Barge, R. I.	Fulton.
Barnes, S. L.	Fulton.
Benoist, H. J.	Mississippi.
Bell, W. S.	Fulton.
Bradley, G. T.	Fulton.
Brannan, S. G.	Florida.
Broome, J. A.	Troup.
Butler, E. G.	Chatham.
Cannon, H. L.	Bartow.
Cheney, G. W. H.	Floyd.
Clark, L. C.	Meriwether.
Clippinger, G. P.	Tennessee.
Cohen, S. H.	Bibb.
Coney, H. B.	Glynn.
Cooledge, F. J.	Fulton.
Cooper, G. W.	Laurens.
Crawley, R. C.	Ware.
Crittendon, A. M.	Randolph.
Cromer, L. C.	Greene.
Crumley, W. G.	Fulton.
Crowder, J.	Coweta.
Day, D. R.	S. C.
Dow, B. W.	Fulton.
DuPree, W. T.	Wilkinson.
Edwards, H. E.	Habersham.
Epstein, M.	Fulton.
Everett, M. E.	Houston.
Finn, E. H.	Ware.
Fisher, F. S.	Tennessee.
Fisher, H. E.	Fulton.
Ford, I. S.	Berrien.
Freid, S. H.	Bibb.
Gager, C. B.	Tennessee.
Gann, R. M.	Fulton.
Garth, W. W.	Alabama.
Gathright, Z. C.	Fulton.
George, C. P.	Fulton.
Guerard, W. E.	Chatham.
Hardwick, S. G.	Texas.
Hastey, J. B.	Meriwether.
Haltiwanger, A. D.	Fulton.
Hegner, W. R.	Fulton.
Heyfron, E. J.	Baldwin.
Hicks, E. O.	Laurens.
Holton, F. J.	N. C.
Houston, A. M.	Fulton.
Hutchinson, W. J.	Cobb.
Ison, F.	Fulton.
Ison, J. G.	Fulton.
James, E. R.	Fulton
Jay, W. W.	Randolph.
Jones, A. V.	Cherokee.
Kehoe, D. E.	Chatham.



CLASS IN THE GYMNASIUM.

Kenner, E. R.	Murray.
King, J. A.	Webster.
Knox, E.	Alabama.
Knight, A. C.	Bartow.
Laboon, B.	Walton.
Lamar, N.	Sumter.
Litchfiield, E. L.	Cobb.
Lovette, J. A.	Fulton.
Luke, J. T.	Berrien.
Lutterloh, C. T.	Florida.
Mallard, W. H.	Fulton.
Mann, L. B.	Telfair.
Masters, C. L.	Tennessee.
May, H. W.	Chatham.
McCandless, S. C.	Butts.
McCord, J. R.	Rockdale.
McElroy. L. L.	Gwinnett.
McJunkin, M.	Habersham.
McLane, R.	Florida.
Meckel, C. F.	Fulton.
Milner, L. P.	Pike.
Mims, C. A.	Screven.
Moise, E. W.	S. C.
Montgomery, A. B.	Floyd.
Moynelo, H. C.	Chatham.
Murphy, F. E.	Ware.
Myrick, J. D.	Baldwin.
Neil, R. M.	S. C.
Newell, C. E.	Cobb.
Parker, H. E.	Fulton.
Paul, W. J.	Texas.
Peck, W. H.	Fulton.
Perry, A. S.	Burke.
Powell, J. J.	DeKalb.
Redwood, M. H.	Richmond.
Reynolds, C. F.	Hancock.
Rowan, W. L.	Mississippi.
Russell, G. E.	Talbot.
Rutzler, G. F.	N. C.
Sams, R. O.	Morgan.
Sanders, S.	Tennessee.
Schultz, C.	Chatham.
Scott, G. W.	DeKalb.
Simmons, C. M.	Floyd.
Simonton, A.	Carroll.
Smith, H. F.	Florida.
Smith, C. Z.	Meriwether.
Smith, H. C.	S. C.
Smith, C. H.	Fulton.
Smith, H. M.	Coweta.
Starr, J. C.	Spaulding.
Stiles, J. C.	Bartow.
Subers, W. R.	Decatur.
Talley, C. R.	Brooks.
Tanner, H. M.	Fulton.
Thomas, W. R.	Ware.
Thompson, R. S.	Fulton.
Thompson, R. Y.	Jasper.
Thornton, C.	Fulton.
Thweatt, C.	Muscogee.
Todd, H. W.	Fulton.
Trapnell, J. M.	Bullock.
Trimble, G. L.	Gordon.
Twitty, R. C.	Hall.
Wallace, W. L.	Rockdale.
Weathers, G. P.	Pike.
Weems, S. C.	Alabama.
Weller, J. J.	Tennessee.
Wells. G. K.	Effingham.
West, H. J.	Fulton.
West, S.	Fulton.
Wheeler, R. W.	Greene.
Wilburn, W. E.	Jasper.
Williams, C. A.	White.
Winchester, C. M.	Mitchell.
Woodward, S. D.	Butts.
Wright, L. R.	Fulton.
Yarbrough, C. A.	Spaulding.

Special Textiles.

Bevel, J. T. (S.T.1)	Upsom.
Brinson, J. A. (S.T.1)	Richmond.
Brinson, P. P. (S.T.2)	Richmond.
Carlock, P. S. (S.T.2)	Douglas.
Comer, R. T. (S.T.1)	Madison.
Dross, P. (S.T.1)	Texas.
Garrard, G. C. (S.T.1)	Muscogee.
Grace, E. H. (S.T.1)	Coweta.
Lovvorn, B. A. (S.T.1.)	Carroll.
Motz. C. (S.T.1)	Cobb.
Pybus, G. W. (S.T.2)	Fulton.
Stacey, E. H. (S.T.2)	Glynn.
Stone, C. F. (S.T.2)	Fulton.
Young, W. B. (S.T.2)	Brooks.

Total.................. 483

DEPARTMENTS.

DEPARTMENT OF MATHEMATICS.

In this Department, the base upon which the superstructures of the different departments of engineering are laid, every effort is made towards thoroughness. Unless proficiency is attained it is useless for the student to proceed, and, in fact, he is not allowed to do so.

More instructors are engaged in this Department than in any other, and often the sections are smaller in order to give as much individual attention as possible.

Unless an applicant for the Sub-Apprentice Class or Special Textile Course is able to meet the requirements on page 94, he should become so before coming to the school.

Unless an applicant is quite familiar with the requirements for the Apprentice Class as mentioned on page 97, he should apply for the Sub-Apprentice.

It is not sufficient for the applicant to say that he has "been over" the subjects required of him. He is required to convince the authorities that he can answer questions similar to those given on pages 106-109.

The requirements are not meant to be hardships or severe tests of the applicant's ability or memory, but they are meant to benefit him by placing him where he can make satisfactory progress, and where he will not be discouraged by requirements he is unable to meet.

Every course leading to a degree includes an extensive course of instruction in pure Mathematics.

Young men who intend to take any course are urged to prior preparation in this subject before reporting for examinations. Coming better prepared than the requirements demand will prove a source of profit, of self-confidence, and of ability to master a course of study which the student will never fail to appreciate.

INSTRUCTION.

Recitations are made daily, an hour being devoted to each section. Perfection in the recitation system is attained by marking every student, as nearly as possible, daily, thereby requiring a thorough preparation of each lesson. With this end in view, classes are subdivided into sections, each section numbering, generally, from twelve to twenty students.

In the lower branches attention is given to continued drills in examples and problems, and to accuracy in recitation. In the higher branches interest is awakened by original problems and practical investigations, requiring a thorough understanding of the principles of the text. The study of the Differential and Integral Calculus is pursued and completed in the Junior Class, thereby enabling their early application in Mechanics. A short course in Differential Equations and their application to Mechanics is given in the first term of the Middle Class year. In surveying, instruction is given with the instruments in the field, by lectures and recitation in the class-room, and by mapping.

All students, except Textiles, are required to take surveying and field practice during the third term of the Junior year.

Requirements for Entrance.—See pages 94 and 97.

Course of Study.—See pages 70-82.

Specimen Examinations.—See pages 106-107.

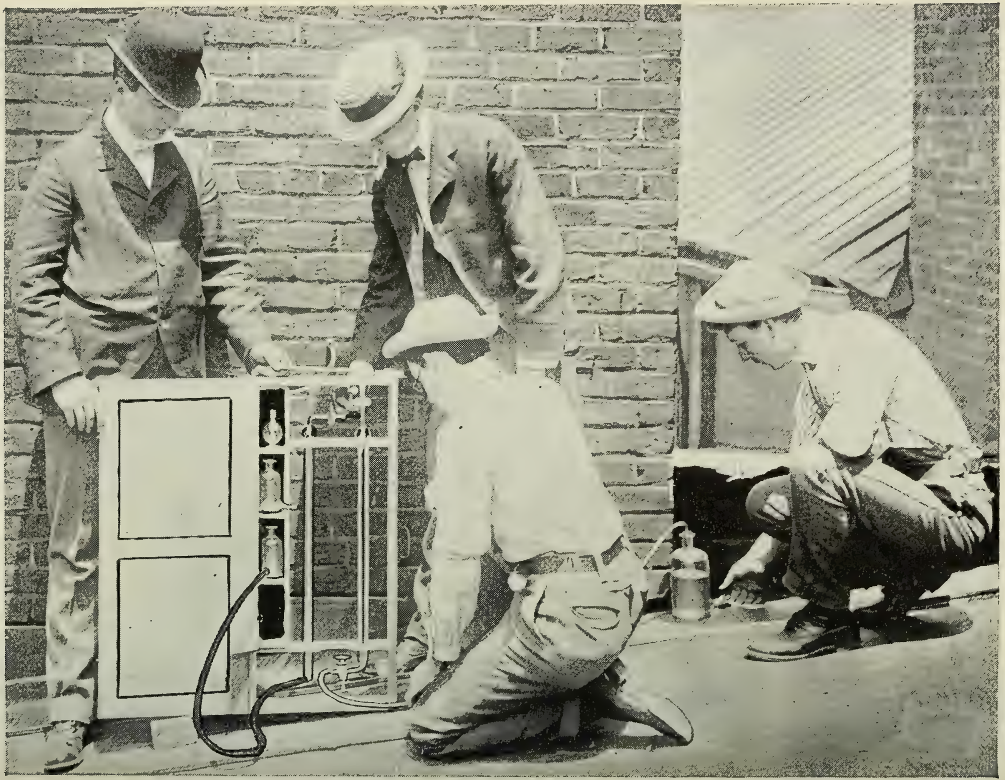
DEPARTMENT OF ENGINEERING CHEMISTRY.

The purpose of the course offered by this Department is to give the student, in the first place, a broad foundation in general and theoretical Chemistry, so that in his future work new problems may be met intelligently and solved. In the second place, to give him special training in those branches of Chemistry which have been most generally applied industrially, so that he may be immediately useful.

The degree conferred upon the graduates of this course is that of Bachelor of Science in Engineering Chemistry. A schedule of subjects required of candidates for this degree is given under "Course of Study," p. 81.

The graduate will be prepared to pursue the subject either on its manufacturing or analytical side. With respect to his fitness to take up work in chemical manufacturing, the course offers exceptional opportunities. The work in Mechanical Engineering, embracing considerable shop practice, mechanism, elementary mechanics, and the steam-engine, will enable him to understand machinery, superintend the running of it, and take charge of various mechanical operations. The course in drawing will enable him to understand mechanical drawings and express his ideas to some extent by them. The course in Electricity will enable him to understand electrical appliances, and to superintend industrial operations carried on by means of electricity. His knowledge of Chemistry will enable him to determine the relative value of the raw materials offered by dealers, and to conduct intelligently operations based on chemical principles, detect imperfections in them and suggest improvements. The work of the course being mainly chemical, the graduate will be prepared to undertake analytical work of almost any kind, and should be valuable in a laboratory, whether for general analytical work or for special work.

The following is a brief description of the course, in which it



COLLECTING FLUE GASES FROM OUR SHOP STACK FOR ANALYSIS AND ECONOMY OF FUEL.

will be observed that laboratory work is a prominent feature throughout:

1. General Chemistry. All Students.

The work of General Chemistry extends through the Apprentice year, three hours per week being given to lectures and recitations, in which the subject under consideration is amply illustrated by experiments serving to make clear and impress the principles and facts of the lesson. The lecture course is accompanied by a laboratory course of two hours per week, in which the student becomes acquainted with chemical apparatus and manipulation, and is taught to observe chemical phenomena with care, and record them accurately in his note-book. Remsen's Introduction to the Study of Chemistry is used as the text-book.

2. Qualitative Analysis. Chemists.

This subject is studied throughout the Junior year, averaging eight hours per week in the laboratory. The student is given a large number of mixtures to analyze, and in the latter part of the course minerals and alloys, the proper determination of which necessitates the careful observation of many phenomena and the drawing of correct inferences from them, while at the same time his chemical knowledge is made permanent and accurate. Frequent quizzes and examinations are given to ensure that the work is being done intelligently and not by rote. Noyes' Qualitative Analysis is used as the guide, and Fresenius' Qualitative Analysis as reference.

2a. Qualitative Analysis. All students except Chemists.

This is a course of four hours per week, extending through the Junior year, similar to the course outlined above, though abreviated to meet the demands of those students who do not expect to pursue the subject of Chemistry.

3. Quantitative Analysis. Chemists.

This course begins in the second term of the Junior year, and extends through the second term of the Senior year. It consists of general and applied Analytical Chemistry.

(a) General Methods.

This work is intended to give the student a thorough groundwork in analytical methods as a basis for the special work to be taken later, and broad enough to enable him to cope with new problems with which he will necessarily meet in the pursuit of his profession.

(b) Applied Analytical Chemistry.

In this work commercial products will be selected for analysis, such as bleaching powder, soda, mordants, alloys, iron ores, slags and limestones.

Fuel Analysis. A complete and proximate analysis of coal, and the determination of its heating power by calorimeter. The bearing of these results on the value of the fuel will be dealt with in the lecture course.

Iron and Steel Analysis. The usual determinations made on iron and steel, and this, together with the analysis of iron ores and limestones, and the work of fuel testing, will equip the student for work in laboratories connected with blast furnaces and steel works.

Water Analysis. The determinations usually made to ascertain the fitness of water for use in boilers and dyeing, and for drinking purposes.

Fertilizer Analysis. The analysis of a complete fertilizer by the methods recommended by the Association of Official Agricultural Chemists.

Assaying. The assay of gold, silver, and lead ores.

Gas Analysis. The analysis of several gaseous mixtures of common occurrence, such as illuminating gas, gases from sulphuric acid works, and flue gasses. The lecture course will deal with the calculations from these analyses, and with discussions of the results in their relation to the economical management of the operations.

Oil Testing. The determination of the flash point of kerosene, the viscosity, flash point, gravity, cold test, etc., of lubricating oils.

3a. Quantitative Analysis. Textile Engineers.

This course, for Textile students only is briefer than that above described, extending through the Senior year. It is intended to give the student such familiarity with analytical apparatus and methods, that he may readily become proficient in testing the raw materials used in the textile industries, and to properly value such tests if made by others.

4. Organic Chemistry. Chemists and Textile Engineers.

This course extends through the Middle year, and consists of recitations and lectures, illustrated by numerous experiments. Remsen's Organic Chemistry is used as the text-book.

The laboratory course, extending through the Middle year, will familiarize the student with the apparatus used in organic work, and with such operations as fractional distillation and crystallization, steam distillation, saponification, nitration, sulphonation, diazotization, etc., operations conducted on a large scale in color works and other chemical industries. He will prepare a number of commercial products, such as nitro-benzene, aniline, phenol, and dye stuffs; and also will be required to make a satisfactory organic combustion.

5. Metallurgy. All students except Textile Engineers.

A brief course in the Metallurgy of Iron and Steel is given during the second and third terms of the Middle year. This course deals with the refractory materials used in furnace linings, the different types of furnaces, iron ores, the production of pig-iron, wrought iron and steel, and the fashioning of them into merchantable products. A short course of lectures is given on the effects of carbon, silicon, sulphur, phosphorus, and manganese on iron, and the production, properties, and uses of "special" steels.

In connection with the above course a series of lectures on Fuels is given, which deal with the methods of determining the calorific power of fuels, pyrometry, the sources and production of the different fuels, natural and artificial, and their suitability for different uses.

6. Industrial Chemistry. Chemists.

This course, extending through the Senior year, will consist of lectures and recitations dealing with the preparation of various products from the raw materials, such as sulphuric acid, hydrochloric acid and sodium sulphate, soda, bleaching powder, fertilizers, lime and cement, glass, soap, illuminating gas, sugar, paper, oils, etc.

7. Physical Chemistry. Chemists.

This course extends through the Senior year, and will consist of lectures and laboratory work. It will deal with such subjects as the laws of gases, solution, vaporization, condensation, fusion and solidification, electrolytic dissociation, etc., and is of practical value in throwing light on separations and purifications brought about by such physical processes as evaporation, distillation, electrolysis, filtration, crystallization, etc., processes very common in chemical manufacture, and which require intelligent control in order to secure the best results.

9. Thesis.

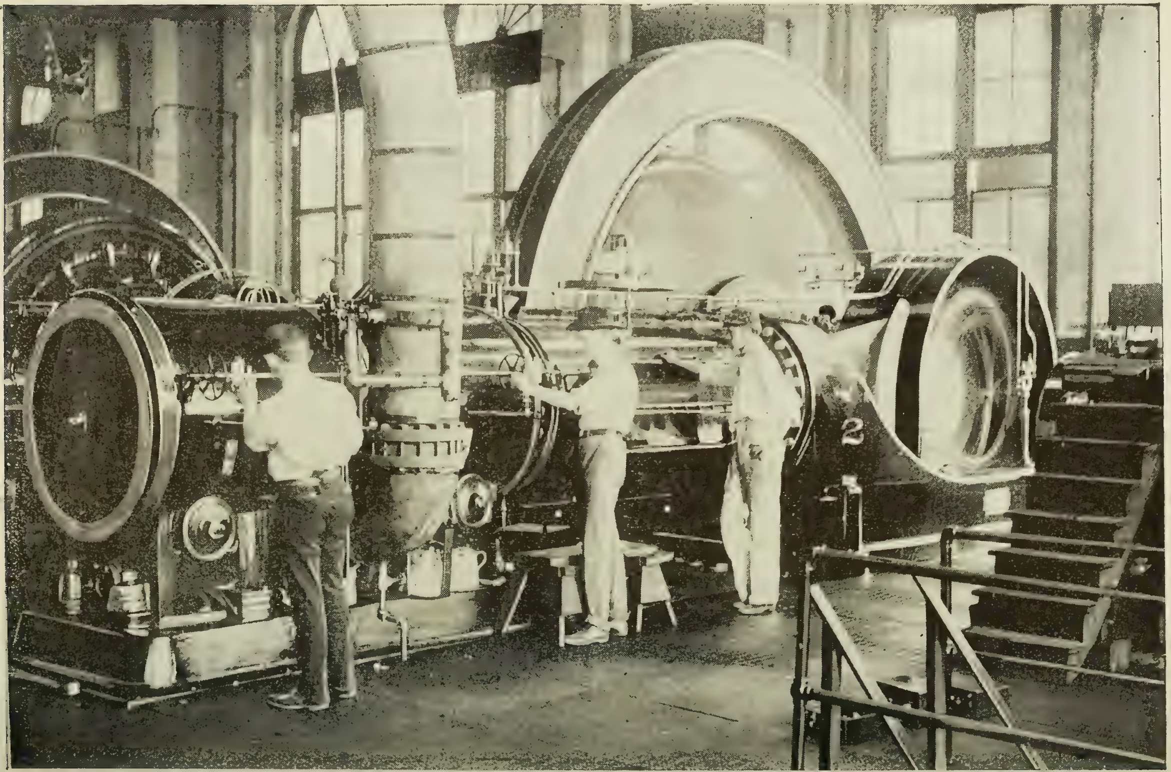
In the latter part of the Senior year the student prepares a thesis requiring original work.

DEPARTMENT OF MECHANICAL ENGINEERING.

All instruction in this department is based on strictly utilitarian lines.

The graduate's commercial valuation, on leaving the technical school, is invariably based on his helpfulness—on what he can *do,* and not on what he *knows.* He must *know* things and how to *do* them, and not simply know *about* them.

It is felt that a student purposing to take a course in Mechanical Engineering must at once manifest marked aptitude in at least one of the three branches: He must have special taste for, and ability in, the understanding and solution of mechanical problems, which require a good knowledge of mathematics; or he must show great quickness of insight, accuracy, and value in the drawing-room; or he must show marked ability as a handicraftsman in the shops. To be a successful engineer, he must excel in all three of these branches. If he excels in none, the case is plain that he has mistaken his calling, or his parents are mistaken, and it is a waste of time and of their money for him to remain here,



THESIS WORK. AT THE ELECTRIC LIGHT STATION, ATLANTA.

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and he is early advised to seek education in some other field of effort.

The studies taught in this department comprise Kinematics and Mechanism, Machine-Design, Analytic Mechanics, Applied Mechanics, Materials used in Engineering Structures, Strength of Materials, Steam Engineering, Prime Movers, and Laboratory experiments.

In Kinematics—the Geometry of Machinery, or Pure Mechanism—the geometric relations of the moving parts of machines are investigated. This includes the proper forms of teeth of Spur Gears, both Epicycloidal and Involute (and their approximations by the use of the various forms of Odontographs), Bevel Gears, and Worm Gearing. This study is supplemented in the drawing-room by a thorough course in drawing the various forms of teeth, and familiarity gained with the best modern shop practice in gear-cutting. Pure Mechanism also includes the study of various types of Epicyclic Trains, and a careful analysis of the velocity ratios of various parts of the steam-engine, with and without beams. This study will, in the near future, be illustrated by a set of excellent models, to be constructed in the school shops by the students.

The study in Machine-Design will be by text-book and lectures, and also by practical application in drawing. It will include the various parts of machine tools, the steam-engine, pumping-machinery, electrical machines, riveted joints, and the proper forms for strength and efficiency of the various parts of other machines in common use. A very important adjunct to this course of instruction will be the study of a magnificent collection of blue-prints of details of a large variety of machinery, for which we gratefully acknowledge obligations to the Calumet & Hecla Mining Company, of Boston; to the Dickson Manufacturing Company, of Scranton, Pa., and others. This incomparable collection of prints will be augmented from time to time.

In Analytic and Applied Mechanics the various forces in statics and dynamics are studied, and a wide range of problems in their practical application to machines is solved. The subjects to which special attention is directed are the various forms and expressions for force; the composition and resolution of forces, and their application to cranes, derricks, etc.; determination of center of gravity; friction; the principle of virtual velocities, and its application to the steam-engine; laws for the transmission of force in the various mechanical powers (so-called); equilibrium and pressure of fluids; accelerated motion and its application in particular to the steam-engine reciprocating parts; eccentric and cam motions; the theory of impact, constrained motion and centrifugal force; moment of inertia, and its application to the fly-wheel, etc.; the actions of governors; kinetic and potential energy; the simple, compound, and ballistic pendulum, etc.

The materials used in engineering structures will principally embrace the mechanical properties and treatment of iron and steel, and the various forms of "ingot metal"—Bessemer and Open-Hearth in particular—various alloys, timber, and cements.

The strength of materials will comprise a combined investigation in class-room and laboratory of the strength of engineering structures, such as beams, pillars, or columns, and girders; the tensile, torsional, and transverse strength of wood and metals, graphic analysis of stresses in various forms of trusses; bursting strength of boilers, etc.

Steam Engineering will include the science of Thermodynamics—the conversion of heat into work in the steam-engine; the attendant losses and means of partially preventing the same; elaborate series of investigations, combined with the practical use of steam-engine indicator; types of indicators; effect of cylinder condensation; losses due to clearance and compression, constructing theoretical cards for compound, "triple expansion," and "quadruple expansion" engines; various types of valve gears in common use; steam-boilers, etc.

In addition to the course of Steam Engineering will be given a study of other prime movers, such as turbines, over-shot and reaction wheels, and a study of the best modern examples, as the "Hercules," "Victor," "Pelton," "Hurdygurdy," etc.

Laboratory practice has been largely indicated in what precedes. It involves the use of various engineering appliances, such as pyrometers, planimeters, gauges, test-pumps, dynamometers, etc. A laboratory is now being fitted up with the foregoing

THE QUANTITATIVE LABORATORY.

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appliances, and will be supplied with motive power by dynamos, and also by gas engine. It will have a large tensile-testing machine, a torsional-testing machine, and a transverse-testing machine, with micrometer gauge, etc., etc., for the carrying out of accurate tests as indicated above.

There has been constructed in the school shops, from our own designs, a transverse-testing machine for making transverse tests on iron and wooden beams, of a more delicate character than can be made on our larger machines. This machine reads accurately by quarter-pounds up to two thousand pounds.

There is a locomotive link-motion model constructed by ourselves; a section model of a steam pump, donated by the Deane Co., of Holyoke, Mass.; a section model of Buckeye Engine, donated by the Buckeye Engine Co.; a small, but beautiful compound engine, with Joy valve-gear, donated by Mr. Thos. Elliott, of Atlanta; a fine model of Hooke's universal joint, constructed by ourselves; a 10-inch standard gauge and test-pump; two Thompson indicators; a Coffin averaging instrument; planimeters; pyrometers, high-grade thermometers, etc., for making condensation and calorimetric tests, and Barrus and other calorimeters.

MECHANICAL DRAWING.

Mechanical Drawing is pursued throughout the entire course of four years, it being considered that efficiency in the drafting-room is second only to proficiency in the shop.

The beginning (Apprentice) class first takes up free-hand geometric drawing, which is taught by lectures and blackboard exercises. This is followed by free-hand elementary linear perspective, sketching from models, with shades and shadows, sketches both in perspective and orthographic projection, from patterns, castings, and parts of machines.

After three months' free-hand work the Apprentice class begins instrumental linear drawing, the construction of geometric problems, etc., followed by isometric, cabinet and orthographic projection, all drawings being made to scale. To assist in the theoretical study of drawing Descriptive Geometry in its application to orthographic, common oblique and perspective projection are studied for the remainder of the year.

Students are advised not to supply themselves with drawing-instruments before consulting the professor in charge. All necessary instruments of the best quality need not cost over $13.00.

The Junior year is devoted to drawing problems in every-day practice in all projections, careful consideration being made in the selection of the problems so that the student can apply directly those principles he has learned in his study of the theory of drawing, thus making the connection between theory and practice clear and profitable to the student.

The Middle year commences with the drawing of machine parts, as spur, screw, bevel and various types of gears, laying out of cams and motion diagrams, etc., etc., being followed by complete drawings of machines, making the assembly drawing and then the complete detail drawings.

During this year tracings from the pencil drawings and blue-prints from the tracings are required of each student. Strict attention is given to the execution of all drawings, and the best modern Drawing-Room practice of the leading manufacturing establishments of the country is followed as closely as possible.

The drawing of the fourth (Senior) year is devoted to machine-design in detail, in which the methods obtaining in the best modern shop-practice are carefully incorporated with purely theoretical considerations. In all the advanced drawing, there is continual connection between the work done in the drafting room and the instruction given in the class-room. At no time is any attempt made to procure pretty pictures which delight the artistic eye of the layman, but which are of no use to anybody, for any purpose. Such amateur work is always necessarily far inferior to, and immensely costlier than, the work of the photographic camera. All drawing, from first to last, is made accurately to scale, and working dimensions plainly given. In short, an effort is made to teach the student how to make correct, accurate, detail working-drawings.

Students entering the school as Juniors will be required to draw extra time two hours per week for two years, and hand in two copy-books of lettering.

IN THE SMITH SHOP. 21 DOWN-DRAFT FORGES.

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WORKSHOP PRACTICE.

A distinctive feature of this school is the mechanical workshops, machine-shop, blacksmith-shop, foundry and wood-shop. Especial emphasis is placed on the importance of practical skill and experience to be gained in shop work of the highest class. Work done here is not merely manual training. Advanced students are invariably employed in all the different shops, on tools and apparatus to be put to some useful purpose when completed.

The shops where students practice occupy a commodious two-story building, 310 feet long by 40 feet wide, with wings 30x40 and 12x40. The building contains the general offices of the shops, drafting-room, iron and wood-rooms, engine and boiler-rooms, wash-rooms and foundry. All these rooms are well equipped with the best modern iron and wood-working machinery and tools.

The shops are no longer run on the contract system. No outside work of any kind is done. A general idea of the character of work carried out may be gathered from notices of machines, etc., now being manufactured in the shops, at the end of this article. All work done in the shops is from our own design, from working-drawings prepared by the students under careful and experienced supervision. The work in all departments calls for the highest abilities of the student.

The first or Apprentice year is devoted entirely to wood-work. This includes a course of elementary instruction in laying out work with knife and pencil and the use of the ordinary hand tools, such as saws, planes, chisels, etc. This is followed by a course in elementary pattern-work, introducing the use of the turning lathe. After these elementary exercises the student works altogether upon practical work, which, for want of a better name, may be classed as cabinet work. It consists for the most part of equipment for the shops or school, such as cabinets, tables, drawing-boards, physical apparatus, etc.

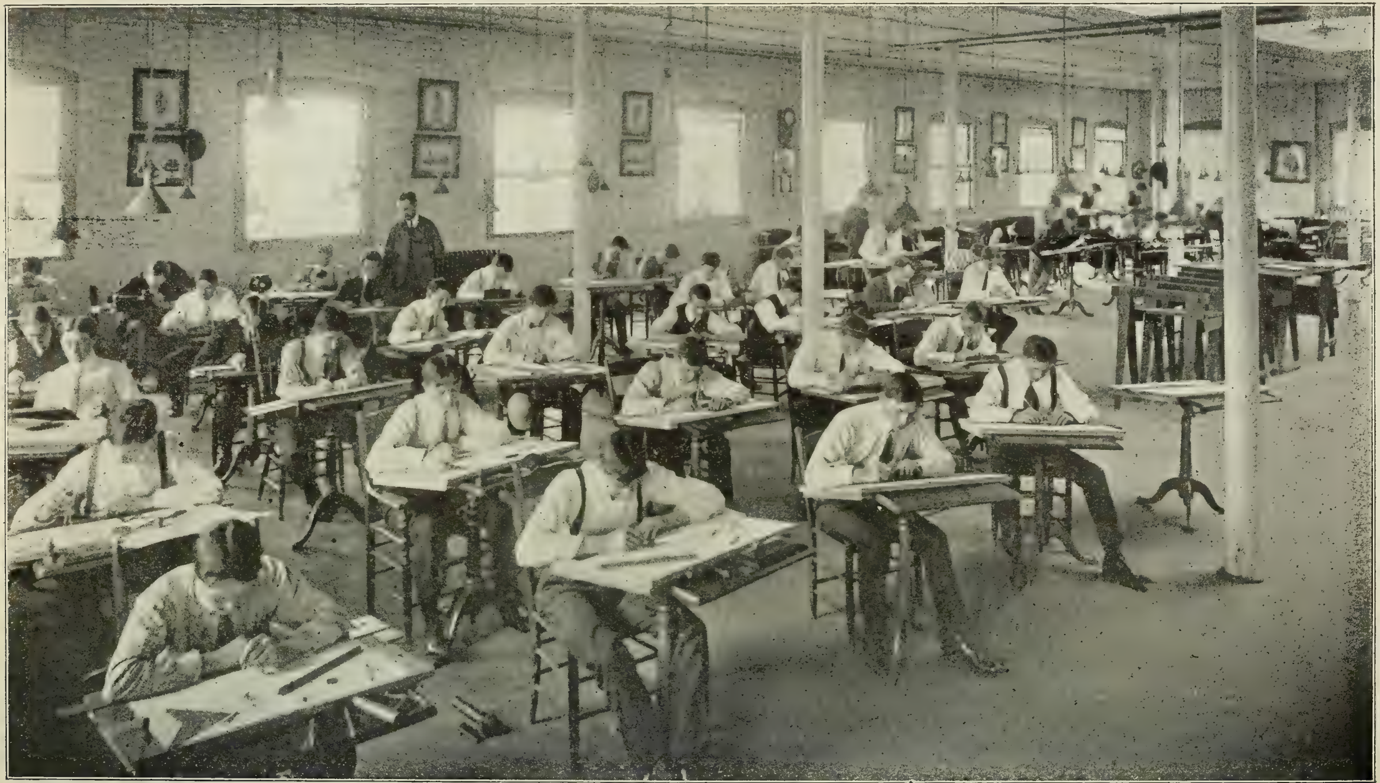
Instruction and practice is given in the use and care of the wood-working machinery, large and small circular saws, band and scroll saws, cylinder and buzz-planers, boring, mortising, and tenoning-machines. Two days of eight hours each, a week, are devoted to shop practice throughout the Apprentice year. About two-thirds of this time is spent in the wood-working shop. As soon as the student has acquired sufficient skill in the use of wood-working tools to begin elementary pattern-work, he is at once sent to the foundry, where he is given thoroughly practical work in the elementry practice of moulding. This first work in foundry is given with the sole purpose of aiding the student to understand the conditions imposed by the foundry on the pattern-maker. Experience has shown that the progress of the student in pattern-making is much accelerated by this method; that many puzzling questions relating to draft, core-boxes, etc., are at once easily and quickly made clear to him in the foundry, which he can never, no matter how well instructed, fully comprehend anywhere else.

Simultaneously with the foundry instruction, the student is given work in pattern-making. The two processes so closely related are thus carried on together; and the work in the pattern-shop is not merely manual training school exercises. It is all work of a high class, carefully designed by an experienced practical engineer, every piece of which forms a part of some useful machine.

Throughout the remaining three years, each student devotes one day each week to the work in the shops. Students who are prepared to pass up the studies of the first year in the academic departments, and enter the school as Juniors, are required to work one-half day extra each week for three years.

The work in the second, third and fourth years (Junior, Middle and Senior) is divided between the four departments of the shop, viz.: pattern-making, foundry, smith-shop, and machine-shop. During these years more time is devoted to the machine-shop than to any other department.

The foundry, which is unlike most foundries, in being a bright, cheerful place, is thoroughly equipped, having, besides a main moulding-room with a floor area of 40x90 feet, a core-room, two ovens for baking cores, a Collieau cupola in a fire-proof annex having iron charging-floor and iron roof, a separate building in



THE DRAWING ROOM FOR APPRENTICE, JUNIOR AND MIDDLE CLASSES.

which are placed the rumblers and the pickling vats, and another building for the brass foundry.

In the foundry the student is given careful and efficient instruction in green and dry-sand moulding, core-making, mixtures of iron, brass-founding, and the mixtures of the various useful bronzes, aluminum-casting, and the aluminum bronzes. There is also a separate cupola for the reduction of "burnt-out" pure copper electric wire to pure pig lake copper.

The smith-shop occupies a separate new building, embodying the latest ideas in smith-shop construction. It is 37x70 feet with all four sides solid glass. It is equipped with twenty-one forges, with Peter Wright's best forged anvils, and blast pipes and smoke ducts under ground. Smoke is carried away by a powerful exhaust fan, on the down-draft system, leaving the overhead space entirely free for admission of light. In one end are the foreman's office and a room fitted up with benches and vises for bench-work in forging. The smoke-exhaust fan is located overhead in the foundry (in another building), and the system works admirably. A more efficient and cheerful blacksmith shop it would be difficult to imagine.

There will be installed in the smith-shop, during the coming year, three double emery wheel stands, now building in our own shops, for tool dressing, polishing, etc.

All the shops are lighted by electricity, both arc and incandescent.

In the smith-shop the student is first given purely manual-training tasks in iron-forging, which are continued only so far as will enable him to acquire sufficient skill to forge some useful article. After that his work is confined to such articles as possess intrinsic value. We received a silver medal at the Cotton States and International Exposition on our display of small tools made in the smithery, such as hammers, masons' and moulders'trowels and tools, turning chisels, gouges, cold-chisels, swages, spawls, etc. The student also acquires skill in forging and dressing lathe and planer tools; welding, tempering, and annealing steel; the brazing and soldering of various metals, case hardening, blueing, etc. It is to be distinctly understood that the student does not simply observe these operations as they are performed by a skilled artisan, but is required to acquire the handicraft himself, under expert instruction.

The machine-shop is well equipped with lathes (two of which are very large ones), planers, grinding tools, universal milling-machine with spiral attachment, shaping-machine, and a large assortment of small tools in a tool-room conducted strictly on the check-system. To this equipment we are constantly adding tools of our own manufacture, having added a 20-inch-by-6-feet iron planer of our own design (upon which we received a silver medal at the Cotton States and International Exposition).

During the present year, 1902-3, there have been added to the shop equipment the following high-class tools: One horizontal boring machine, by Bement, Miles & Co.; one 16-horse Hendey-Norton lathe, with turrett head, etc.; one 10-horse Pratt & Whitney Co.'s tool maker's lathe, with drawing in collets, etc.; one Brown & Sharpe Mfg. Co.'s universal grinding machine; one Potter & Johnston 15-horse shaping machine; one Merrell Mfg. Co.'s pipe cutting machine; one J. R. Fay & Egan Co.'s poney planer, and several lathes of common make, for beginners.

Beginners in this department of the shops are first given instruction in chipping and filing. The elementary tasks are of the usual manual training-school order, the first lesson being to chip and file a rought cast-iron block into a cube, with flat faces, sharp corners and right angles. Only a few lessons of this character are given, as it is felt that here, as elsewhere, the sooner the student can be put upon productive industry the better It can not be successfully denied that a student takes more interest in work of a useful character than he does in a mere task. He can be better taught to turn and grind round fits, scrape true, flat surfaces, and drill flutes and spirals in useful articles, parts of machine tools, for instance, than in manual training tasks to be cast into the scrap-heap.

All work of whatever kind in all departments (excepting, of course, the foundry) is done to working drawings. No haphazard, no chance, no "beginning at nothing and ending nowhere," is allowed. Under certain conditions students are al-

IN THE WOOD SHOP.

lowed to work in the shop extra time on things for themselves. Work of this character must meet the approval of the head instructor, must be made to a working-drawing or a carefully-prepared dimensioned sketch, and must be of a character to reflect credit on the student and possess intrinsic value. As work of this character may be mentioned small steam-engines, electric generators, motors, etc.

Students are also instructed in the practical management of the shop steam-engines, boilers, firing, etc.

The following partial list may give some idea of the character and scope of the work done by the students in our shops. Some of this work is now in process of construction.

For the Swann Dormitory, sixty-five iron beds, thirty-five oak washstands, sixty oak tables, fifty oak bureaus. Besides this a large amount of furniture for other departments of the school and also much that students have made for themselves and taken to their homes.

Twenty hand looms for the Textile Department, besides a large amount of repair work. Over one hundred iron drawing tables, and hundreds of drawing boards, for the Department of Drawing.

A large number of tools in the smith-shop, such as moulders' tools, drawing knives, carving knives by the hundred, turning chisels and turning tools for ourselves.

A fifty-horse power engine, now driving our shops, made by ourselves entire, including drawings, patterns, castings and forgings.

Four double emery wheel stands.

Four 20 inches by 6 feet iron planers.

A 24-inch buzz planer.

A 12-inch buzz planer.

A power geared pump for pumping all the water of condensation of our heating plant back to boilers, boiling hot.

Ten wood speed lathes.

Many electric generators, the largest a 10 K. W. for ourselves.

Many small steam engines by students for themselves.

DEPARTMENT OF ENGLISH.

The course in English embraces four years. As the school has no separate departments of History and Economics, branches of these departments are included in the English course.

Recognizing that conventional instruction in English is largely theoretical, and consequently is inefficient, the objects of this course are practical.

The aim is to train the student in the best methods of expression, to cultivate in him true literary taste and appreciation, and to give him an adequate knowledge of the history of English language and literature.

The course is supplemented throughout by frequent lectures on the part of the Professor and his associates.

Accessory to the department is a library of some 2,500 volumes, recently acquired.

Apprentice Class.

The class recites four hours a week throughout the school year. For admission to this class the following requirements apply: (a) A comprehensive knowledge of English Grammar; (b) a liberal and literary knowledge of the following texts, prescribed as College Entrance Requirements in English: Southern Poets, Lady of the Lake, Silas Marner, Rip Van Winkle and the Legend of Sleepy Hollow.

School editions of above classics may be obtained from any of the publishers of school texts.

During the first and second terms Outlines of Rhetoric is studied. Emphasis is laid upon theme writing, and constant exercise in this fundamental work is required under the careful supervision of the instructors. The Harvard system of teaching Freshman English is employed.

The third term is given to a course in general history.

Frequent declamations are required throughout the year.

MACHINE WORK IN WOOD SHOP.

Junior Class.

The recitations are as follows: Five hours per week the first term; four hours per week the second, and three hours per week the third term.

The three terms of this class are devoted to an introductory study of English literature. In this connection the student is required to master Rhetorical methods and principles, and thus form for himself a valuable apparatus of investigation and criticism. Parallel reading courses are assigned, upon which written reports and criticisms are required. Essays, and either declamations or debates are required at frequent intervals throughout the year.

Middle Year.

Recitations three hours per week throughout the year.

During the first and second terms, the class studies Economics.

The third term is spent in the study of American Literature. Parallel reading courses are assigned, upon which written reports and criticisms are required.

Frequent essays, with occasional debates, are required throughout the year.

Senior Class.

Recitations two hours per week.

The Senior year is devoted to as comprehensive a survey as possible of the historical development of the English language and literature, and to a critical study of Shakespeare, Milton, Tennyson, Robert Browning, and other literary masters, the list of authors being varied from year to year. Essays and debates are required on stated occasions.

DEPARTMENT OF ELECTRICAL ENGINEERING.

The aim of this department is to give the student such a training that he will be able to enter any part of the field of elecrical engineering. No one can make a successful elecrical engineer unless he has a considerable knowledge of mechanical engineering; consequently the courses are alike for the first two years, and have many subjects in common throughout.

The department occupies the second floor of the Electrical Building and a part of the shop.

The Power Plant is located in the shop and consists of an Atlas engine belted to a 17 1-2 K. W. 110 volt Triumph generator and a 9-light Thomson-Houston arc light generator; with a 6.6 K. W. 110-volt General Electric generator belted from the shop line shaft. These machines are used to furnish current for lighting the various buildings and power for the Electrical Laboratory.

The Electrical Laboratory is located on the second floor of the Electrical Building and contains the following machines, most of which are connected together in pairs so that either may be used as generator or motor at will. A 10 K. W. double current generator, built in the school shops, capable of supplying either direct, two-phase or three-phase currents; a 5 K. W. 110-volt shunt generator built in the school shops; a 5 H. P. 110-volt Commercial series motor; a 5 K. W. 110-volt three-phase Ideal alternator; a 5 H. P. 110-volt three-phase General Electric induction motor; two 6 K. W. 125-volt Edison compound generators; a 5.6 K. W. 125-volt Westinghouse motor generator set; a 10 H. P. 110-volt Stow motor; two 3 K. W. transformers arranged for phase transformation; several 1.5 K. W. transformers; a 11 M. F. adjustable condenser, and the necessary instruments for the complete testing of the above machines.

The donations received by the department during the past year are:

Telephone switchboard parts, American Electric Telephone Co

Integreting wattmeter, Duncan Electric Mfg. Co.
Integreting wattmeter, Diamond Meter Co.
Holophane globes, Holophane Glass Co.
1.5 K. W. transformer, Ft. Wayne Electric Co.
1.5 K. W. transformer, Moloney Electric Co.
Underground conduit, Standard Vitrified Conduit Co.
Cable splice, Southern Bell Telephone Co.

The following courses are offered in this department:

1. DYNAMO ELECTRIC MACHINERY.

1. Direct Current Machinery.—A study of the theory, construction and operation of the various types of direct current machines. Five hours per week during the third term for Electrical Engineering Middlers.

2. Alternating Current Machinery.—A study of the theory of alternating currents and the theory, construction and operation of various types of alternating current machines. Five hours per week during the first term, three hours per week during the second term and two hours per week during the third term for Electrical Engineering seniors.

3. Testing.—Laboratory course to accompany courses 1 and 2. The student makes complete tests of various types of apparatus with the object of becoming familiar with the methods of operation and the use of instruments. Three hours per week throughout the year for Electrical Engineering Seniors.

4. Design.—A study of the principles of design of various types of apparatus. Each student is required to make a complete design of one or more machines. Six hours per week in the drafting room during the second and third terms for Electrical Engineering Seniors.

2. ELECTRO-CHEMISTRY.

5. Applied Electro-Chemistry.—A study of the operation of electric batteries and the application of electro-chemical methods to the production and refining of various substances. Three hours per week during the second term for Electrical Engineering Seniors.

3. ELECTRICAL INSTALLATIONS.

6. Illumination.—A study of various light sources and the principles of illumination; particular attention being paid to electric lamps. Two hours per week during the first terms for Electrical Engineering Seniors.

7. Telephone and Telegraph.—A student of the various telephone and telegraph systems now in use. Two hours per week during the second term for Electrical Engineering Seniors.

8. Power Plants.—A study of the design and operation of plants for the generation, transmission and distribution of power by electricity; particular attention being paid to the question of cost. Three hours per week during the third term for Electrical Engineering Seniors.

9. Elements of Electric Power Distribution.—A study of the elements of dynamo electric machinery and electric power distribution of power. Three hours per week in the class room and three hours per week in the laboratory during the first term for Mechanical Engineering Seniors. Two hours per week in the class room during the third term for Civil and Textile Engineering Seniors and Engineering Chemistry Seniors.

10. Thesis.—The subject for the thesis should be selected during the first term of the senior year, so that it may be well in hand by the first of the third term when the experimental work (if any) should be commenced.

For course of study see page 74.

DEPARTMENT OF CIVIL ENGINEERING.

In this department theory and practice are combined in the best possible manner, the class-room theory being put to to immediate practice in the field or drawing-room. The student is thus taught to do his work thoroughly and intelligently, and the misty points are found and cleared away.

In the field, and under the direction of an instructor, types of work are performed and, later, the student is sent to do similar

IN THE VISE ROOM OF THE SMITH SHOP.

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work by himself; all the work is carefully worked out and checked in the computing-room. The problems are those of actual practice, and all work is done thoroughly and accurately, carelessness resulting in students doing the work over during time he would otherwise have to himself.

The course in Dynamo Machinery renders the student familiar with the structure and workings of electrical machines, and enables him to select intelligently the machine for the work he has in hand.

The course in Steam-Engine is designed to familiarize the student with types of boilers, engines and pumps, to decide upon the one to be used and to test its efficiency.

In Hydraulics and Hydraulic Machinery he is given a thorough training in the principles of the subject and their application to the designs of motors and water-wheels.

We have for this work four Y-levels, one engineer's transit, one engineer's transit with Saegmuller solar attachment, one plane-table, with telescopic alidale arranged for stadia, one complete compass, one aneroid barometer, one Thatcher slide rule, one sextant, one planimeter, pedometers, chains, tapes, rods, etc.

A constant effort is made to make the problems and their treatment, both in the field and office, conform to the best modern practice, and thus to make the student valuable to his employer at the earliest possible moment.

We have some valuable designs of existing structures, and this collection is constantly being added to.

The studies of this department are:

I. *Surveying.*—1. Structure, theory and use of field and office instruments, with practical application of these to surveys, location of meridian, leveling, railroad curves, staking out work, and computation of quantities.

2. The location, construction and maintenance of roads, railroads, street pavements and canals.

3. Topographical and Geodetic Surveying, with the application of plane-table and stadia.

II. *Mechanics.*—1. Elementary mechanics, theoretical and applied.

2. Analytic Mechanics.

3. Hydraulics. The principles of statics and dynamics of fluids, the flow of water through conduits, pipes, weirs, and orifices, and the determination of horse-power.

III. *Graphical Statics.*—1. Mechanical drawing.

2. Descriptive geometry and shades, shadows and perspective, together with stereotomy, and their applications to engineering problems.

3. Graphic solutions of Mechanical problems.

IV. *Engineering.*—1. Masonry structures; foundations for masonry, designing retaining walls, arches, dams, etc.

2. Framed structures. Designing roof-trusses, bridges, buildings, water-towers, tanks, etc.; special attention is paid to iron and steel in construction.

3. Strength of materials and materials of engineering.

4. Municipal engineering, water-works, sewerage, drainage, streets and pavements.

5. Steam engine and boilers.

6. Electrical machines.

7. Hydraulic Machinery.

TEXTILE DEPARTMENT.

THE A. FRENCH TEXTILE SCHOOL.

This Department offers unexcelled advantages to the young man who intends to enter the textile industry. We believe that the student, on graduating, should have a sound foundation in engineering subjects as well as in the branches relating directly to the textile trade.

We therefore include, besides the usual subjects given in textile schools, such as carding, spinning, weaving, designing, and dyeing, extensive courses in mathematics, English, chemistry, physics, mechanism, mechanics, drawing, strength of materials, steam-engine, electrical work, mill construction, and shop work.

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THE A. FRENCH TEXTILE SCHOOL.

The course not only covers all the theoretical sides of the different subjects, but is extremely practical. For example, with a few exceptions where very fine or fancy yarns are required, we make all the yarn used in the weave-room. This yarn and the cloth produced must be up to mill standards, as it is placed on the market and sold. We believe that no other textile school is run on such a practical basis.

During the third term the Senior Class is usually taken on a week's trip to some manufacturing centre where the different systems used in the mill and power plants, are thoroughly studied.

BUILDING AND EQUIPMENT.

The Textile Building is a splendid example of architectural skill in modern mill construction. It is equipped with complete systems of heating, ventilating, electric lighting, humidifiers, automatic sprinklers, and, in fact, all apparatus and appliances found in the modern mill.

Great care has been exercised in selecting the equipment, which is the most complete in the world for education in the different branches of cotton manufacture. Several makes of each kind of machine have been installed, thus enabling the student to become familiar with most of the prominent makes now in use.

The equipment consists of:—

The Sturtevant system of heating and ventilating, made by B. F. Sturtevant & Co., Boston, Mass.

Complete equipment of automatic fire-sprinklers, from the General Fire Extinguisher Co., Providence, R. I.

System of humidifiers, from the American Moistening Co., Boston, Mass.

Entire equipment of shafting, hangers, and pulleys, from Jones & Laughlin, Pittsburg, Pa.

CARDING DEPARTMENT.

Ginning.

One Winship Cotton Gin Feeder.
One Winship 60-saw Cotton Gin.
One Winship Condenser.

Pickers.

One Kitson Automatic Feeder.

One Kitson Single Beater Combination Breaker and Finisher Lapper, with Clarke & Perham's evener.

One Atherton 40″ Single Beater Finisher Picker complete.

One lap scale.

Cards.

One Saco-Pettee 40″ Revolving Flat Card.

One Whitin 40″ Revolving Flat Card.

One Howard & Bullough 40″ Revolving Flat Card.

One Lowell 40″ Revolving Flat Card.

Grinding, Stripping and Burnishing Rolls—Complete set Carder's Tools.

Combing.

One Dobson & Barlow Sliver Lap Machine.

One Whitin Sliver Lap Machine.

One Whitin Ribbon Lap Machine.

One Whitin Combing Machine.

One Dobson & Barlow Combing Machine.

One percentage scale for comber.

Railway.

One Saco-Pettee Railway Head, with evening motion and metallic rolls.

Drawing.

One Saco-Pettee Drawing Frame, 4 deliveries, and metallic rolls.

One Whitin Drawing Frame, 4 deliveries, and metallic rolls.

One Sliver scale.

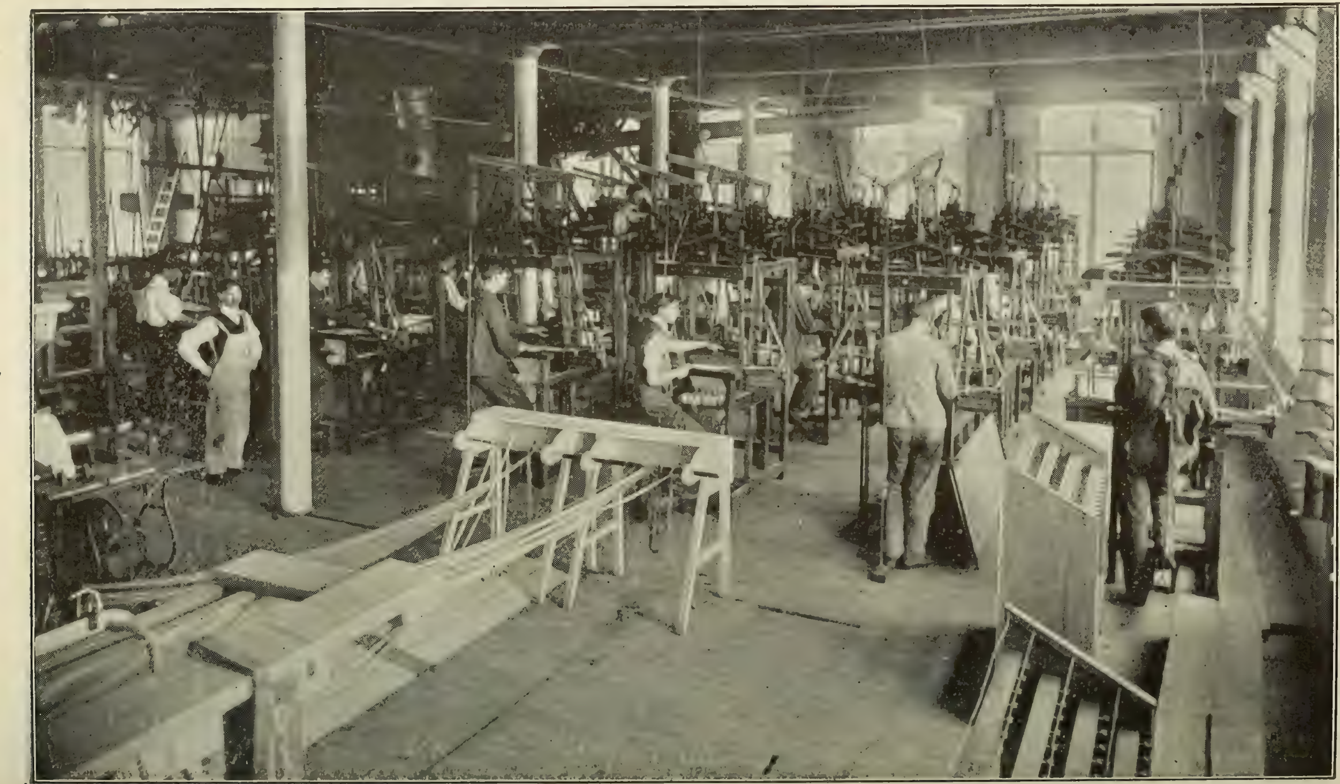
Fly Frames.

One Woonsocket Machine and Press Co.'s Slubber, 32 spindles, with Daly's improved differential motion.

One Woonsocket Machine and Press Co.'s Intermediate, 42 spindles, with Daly's improved differential motion.

One Saco-Pettee Machine Co.'s Intermediate, 44 spindles.

One Saco-Pettee Machine Co.'s Fine Roving Frame, 72 spindles.



PRACTICE ON HAND LOOMS.

THE
JOHN CRERAR
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One Woonsocket Machine and Press Co.'s Fine Roving Frame, 64 spindles, with Daly's improved differential motion.

One Providence Machine Co.'s Fine Roving Frame, 64 spindles.

One Sacco-Pettee Machine Co.'s Jack Frame, 96 spindles.

One Roving Reel and Scale.

Two Laminar Fibre Co.'s Roving Trucks.

SPINNING DEPARTMENT.

Ring Spinning.

One Fales and Jenks combined warp and filling Frame, 80 spindles.

One Fales & Jenks filling frame, 80 spindles.

One Whitin combined warp and filling frame, 64 spindles.

One Saco-Pettee Machine Co.'s combined warp and filling frame, 160 spindles.

One Howard & Bullough combined warp and filling frame, 160 spindles.

Mule Spinning.

One Mason Spinning Mule, 360 spindles, 1 1-2" gauge.

One Yarn Balance and Reel.

One Yard Testing Machine for Stretch and Strength.

Twisting.

One Draper Twister, 128 spindles.

One Draper Twister, 32 spindles.

One Fales & Jenks combined warp and filling Frame, 80 spindles.

One Howard and Bullough Twister, 128 spindles.

One Twist Counter.

One Weeks banding machine.

Spooling.

One Easton and Bernham Spooler, 24 spindles.

One Draper Spooler, 40 spindles.

One Whitin Spooler, 60 spindles.

Two Barber and Colman Knotters.

Winding and Reeling.

Two Universal Winding Machines, 7 spindles.
One Fairmount Bobbin Winder, 12 spindles.
One D. A. Tompkins Co.'s adjustable reel, 50 spindles.

WEAVING DEPARTMENT.

Warping.

One Entwistle Beam Warper with creel.
One Entwistle Beaming Machine, with tension drums.
One Draper Beam Warper with creel.
One Draper Ball Warper with creel.
One Cole Bros. Slashing machine.

Slashing.

One Lowell Cylinder Slasher, 6 beam creel.
One Lowell Size Kettle.
One Lowell Size Pump.

Hand Looms.

Hand Weaving Room, with thorough equipment of hand bobbin winders, warping pins, hecks, drawing-in frames; and 30 hand looms, with 30 harness dobbies, 4 shuttles, 4 beams, let-off and take-up motion, etc.

Power Looms.

One 36″ Colvin Plain Loom.
One Northrop-Draper Print Cloth Automatic Loom.
One Northrop-Draper 5 Harness Automatic Loom.
One Lewiston Machine Co.'s Pillow-case Tubing Loom, with attachment for weaving plain goods.
One Lewiston Machine Co.'s 36″ Plain Loom.
One Whitin Plain Loom.
One Mason Plain Loom.
One Lowell Print Cloth Loom.
2 Kilburne-Lincoln Plain Looms.
One Mutual Machine Co.'s Turkish Towel Loom.
One Kilburn & Lincoln Gingham loom, 2x2 box, and 2, 3 and 4 leaf under cams.
One Mason 32″ Gingham Loom, 4x1 box, and 2, 3 and 4 leaf under cams.

One Crompton-Gingham Loom, 6x1 box, and 2, 3 and 4 leaf under cams.

One Mason Dobby Dress Goods Loom, single box, and 20 harness for 2 and 3 beam work.

One Crompton Dobby Dress Goods Loom, 4x1 box, and 20 harness for 2 and 3 beam work.

One Knowles Cotton Dobby Loom, single shuttle and 20 harness for 2 and 3 beam work.

One Knowles Leno Loom, 4x1 box, multiplier, easing rods, 25 harness, double cylinder, for 2 and 3 beam work.

One Crompton Dobby Loom, 4x1 box, multiplier, 25 harness, double cylinder, for 2 and 3 beam work.

One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, left hand for 2 and 3 beam work.

One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, right hand for 2 and 3 beam work.

One Fairmount Dobby Loom, 4x1 box, 16 harness for 2 beam work.

One Fairmount "Ingraham" Harness Motion and Loom, 4x1 box, multiplier, 20 harness for 2 beam work.

One Crompton-Knowles Upholstery Loom, with 600 hook, double lift, single cylinder, Jacquard machine.

One Crompton-Knowles Upholstery Loom, with 400 hook, single lift, single cylinder, Jacquard machine.

One Kilburn and Lincoln Dress Goods Loom, with 400 hook, rise and fall, rotary cylinder, Schaum & Uhlinger, Jacquard machine.

One 11-4 Lewiston Quilt Loom, 2x1 box, with 1,200 hook, double lift, single cylinder, Halton Jacquard machine.

One Crompton Damask, Loom, 4x1 box, with 600 hook, double lift, double cylinder, Halton Jacquard machine.

One French Index Royle's Power Card Cutter.

One French Index Schaum & Uhlinger Card Cutter.

One Royle's card lacing frame.

Finishing.

One Curtis & Marble Railway Sewing Machine.

One Curtis & Marble Brushing and Calendering Machine.

One Elliott and Hall 40″ Cloth Folder.

One Windle Doubling and Winding Machine, with Measuring attachment.

One Parks & Woolson French Napper.

One American Napping Machine Co.'s French Napper.

KNITTING DEPARTMENT.

One Branson 7-8 automatic knitting machine.

One Scott & Williams 7-8 automatic seamless hosiery machine.

One Scott & Williams single-lever automatic shirt body machine.

One Scott & Williams tucking sleever.

One Scott & Williams automatic welter.

Four 7-8 automatic seamless cylinders.

One transfer cup.

One Campbell & Clute single knitting-machine.

One Campbell & Clute turning off machine.

2000 extra needles.

Hosiery forms, finishing boards, etc.

Owing to the lack of floor space we have been unable to start our Knitting Department, but we hope to do so early in the future with increased equipment.

DYEING DEPARTMENT.

One Dry Room.

Eight Dye Vats, 2x3 feet, regulation depth.

One Bleaching Box and Souring Vat.

One Buttersworth Steam Cylinder, for steaming yarns and cloth.

One complete set Thos. Phillips Copper Measures.

One Thos. Phillips Patcher Steamer.

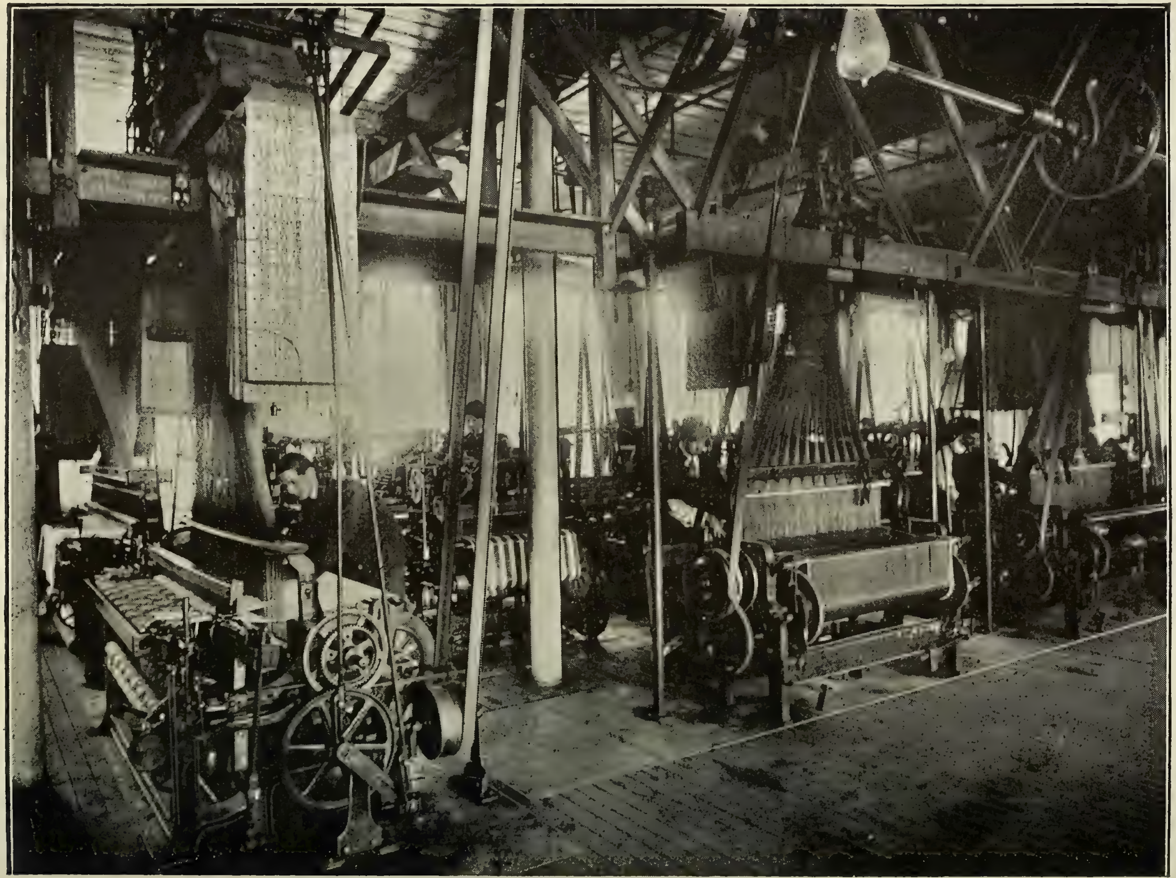
One Granger Jigg Dyeing Machine.

One Schaum and Uhlinger Self-balancing Engine-driven Hydro-Extractor.

One Raw-stock Dyeing Machine.

Six Yarn Dyeing Machines.

One Ventilating Wheel.



THE JACQUARD LOOMS.

The Dyeing Laboratory is fitted up complete for experimental dyeing, analysis, etc. Students have access to our splendid collection of dyestuffs which is, we believe, the most complete in the United States.

Fire Protection.

One Fales and Jenks Iron Rotary Fire Pump.
Complete system of automatic fire-sprinklers.
Fire pails.

Humidifiers.

Complete system of "Drosophore" and "Vortex" Hudimifiers and Pump, with connections, donated by the American Moistening Co.

Power.

One Hundred H. P. Boiler, donated by Thayer & Co.
One 60-H. P. Corliss Engine, from the Lane & Bodley Co.
Shafting, Hangers and Pulleys, donated by Jones & Laughlin.

DEPARTMENT OF TEXTILE DESIGN.

FABRIC STRUCTURE.

The study of the above subject includes fundamental principles of the structure of fabrics; classification of fabrics; "balance of cloth" necessary to give the maximum of wearing qualities and best general appearance; economical construction; texture calculations; for "solid" weaves; for "combination" weaves; take-up in weaving; its relation to the different combinations of textures and weaves; examples of weaves which take up warp and filling at different rates; influence of twists on the appearance of the fabric; influence of the texture on the appearance of the weave in the fabric; examples of fabrics in which it is more suitable to use one class of weaves than others; influence of twists on textures; proper textures for single cloth; finding the diameter of yarns; calculating textures by diameters and interlacings.

Proper textures for double cloth, triple cloth; textures for fabrics in which the layout of warp and filling are unequal; changing textures from one weave to another; methods of increasing or decreasing the weight of fabrics without affecting its general appearance; system of adding an extra warp or an extra filling; stitching the same; stitching fabrics in which the layout of warp and filling is different. Stitching double cloths, triple or more ply cloths.

Method of stitching a silk stripe or plaid on a plain cotton fabric.

Stitching fabrics after a motive for the purpose of ornamentation. The uses of stuffer fillings and warp and the manner of their introduction into the fabric.

FABRIC DESIGN.

Includes the formation of fabrics by interlacing threads introduced at right angles; method of representing the interlacing on "square" or "point" paper; the terms "warp," "filling," "raiser," "sinker," "weave," etc., explained; planning the weave; the three foundation weaves; the plain or cotton weave; producing fancy effects on a plain weave foundation; color effects; representing the same on point paper; derivative weaves; plain and fancy basket weaves; warp, filling and oblique ribs; planning drawing in drafts and chain drafts on paper; reducing weaves to their lowest number of harness.

Twills.—Common twills; representing color effects on twilled grounds; derivative weaves; broken twills; pointed twills; fancy pointed twills; plain and fancy skip twills; steep and reclining twills; entwinning twills; curved twills; cork-screw twills; fancy twills; double twill effects; shaded twills; fancy ground weaves on twill foundation; fancy effect in twill combinations.

Satins.—Warp and filling effect; double satin; broken satin; satins broken after motives; ground weaves on satin foundation; fancy effects in broken satins; satin granite weaves; fancy granites; satin shading.

The above weaves enable the student to know the origin and application of all the simpler weaves used in the designing of all classes of textile fabrics. The following more especially in cotton goods:

Spot and stripe weaving; plain fancies and brilliants; fancy satin stripes on plain ground; other combinations of the plain

BENCH WORK IN WOOD SHOP

weave with satins and twills; the various imitations of leno or gauze weaving; satin stripes; fancy ground weaves, derived from twills by combination; honey-comb weaves; madras combinations; floating warp for same; bedford cords and their combinations; huck and "Turkish" toweling; fabrics consisting of one or more systems of warp interlacing with one or more systems of filling; double and triple cloths as applied to very heavy cotton fabrics; stuffer warps and fillings; double plains; figured double and triple plains; figured dress-goods using an extra warp or filling for ornamentation; double-faced or figured reversible fabrics; seamless bags; method of stitching in the sides and bottoms of bags; plain piques or "welts;" fancy piques; piques as applied to Marseilles quiltings; combinations of single and double plains in dress-goods; other "novelty" weaves; methods of stitching a silk stripe or plaid on a cotton fabric; pile fabrics cut and uncut; cotton specialtiess swivel spots; lappet designing; principles of leno or gauze weaving; doups and easing-rod; standard, skeleton and ground harness; functions of each; combinations of plain weave and gauze effects; plain and fancy gauze in the same fabric.

FABRIC ANALYSIS.

Includes yarn calculations, leading to and preparatory to analysis; standard of cotton yarns; system of numbering; obtaining the "count;" counts of single and doubled yarns; grading two, three, four or more ply yarns; standard woolen, worsted, silk and linen yarns; determining the counts of these yarns in the cotton system of numbering; weight, count and yard calculations; estimating quantities and cost of the minor threads in making fancy twists; contraction in twisting equal or unequal minor threads; obtaining the resultant counts and cost of the same; counts of minor threads necessary to produce a desired count; estimating the cost of woven fabrics; drafting and chain building; finding apparent cost per yard finished; reed, heddle and harness calculations.

The instruction in the Middle and Senior year is carried along the above lines, the object being to make the student familiar with the rules and best systems of cloth analysis. He is furnished with samples of all the grades of cotton fabrics and his analysis of the same must be complete and thorough in every respect.

On the completion of this year's work the student should be able to analyze and reproduce any sample of cotton goods submitted to him, given the necessary machines and materials.

THE JACQUARD MACHINE.

The instruction relating to this machine includes its history and development; relation to harness machines; its method of producing ornaments; analysis and description of its principal parts.

Locating the number one needle on the machine; French index; fine index; analysis and drawings of the vital parts of the single lift, single cylinder; raise and drop; double lift, single cylinder; double machines, showing their internal mechanism; the tie-up; English system—front cylinder, back cylinder; French system—left cylinder, right cylinder; description and uses of the leashes, couplings, mail, lingo, etc.; the comber or "compart" board; sectional; solid; threading from the front and from the back.

Tracing effects of "raisers" and "sinkers" on the design through pattern-cards and machine to the fabric; drawings of straight-through and point-tie-ups; journals and journal tie-ups; tie-ups for gauze weaving; slackening mechanisms and other motions necessary in doup work; running tie-ups in connection with harness-work; tie-up calculations.

JACQUARD DESIGNING

Includes the methods of producing ornament by mechanical means; laying out and managing designs for economical production; original sketches in fabric size; distributing forms on original sketches so as to avoid streaks, and produce symmetrical effects; "all-over" effects, "stripe" effects, "checker-board" and "diagonal" effects; selection of proper designing paper in regard to the texture to be employed; determining the number of hooks to be used, number of ends in a repeat and the number of repeats; enlarging and reducing sketches by the "square" system to the area to be occupied on the designing paper; transferring the pattern to design paper; painting in the sketch; stitching warp and filling floats by means of satin, twill and random stitches; indicating the ground weave; locating the number one, its influence on the direction of twills by its position on the comberboard; shading forms by satin and by twills; making complete designs for straight-through and center point tie-ups as such, and in their various combinations; ruling paper for card stamping; card stampers' instruction; stamping so as to make the load in weaving as light as possible; fabrics woven face up; fabrics woven face down; cutting and lacing cards; analysis and reproduction of Jacquard patterns; two or more ply Jacquard cloths; method of representing the various warps and fillings on design paper; color in Jacquard design; card stamping on reduced textures; complete designs for quilts, spreads, fancy table coverings, Damask and other turkey reds, dress-goods, vestings, curtains, towelings, lap-robes, hangings, upholstery, etc.

DEPARTMENT OF CARDING AND SPINNING.

CARDING.

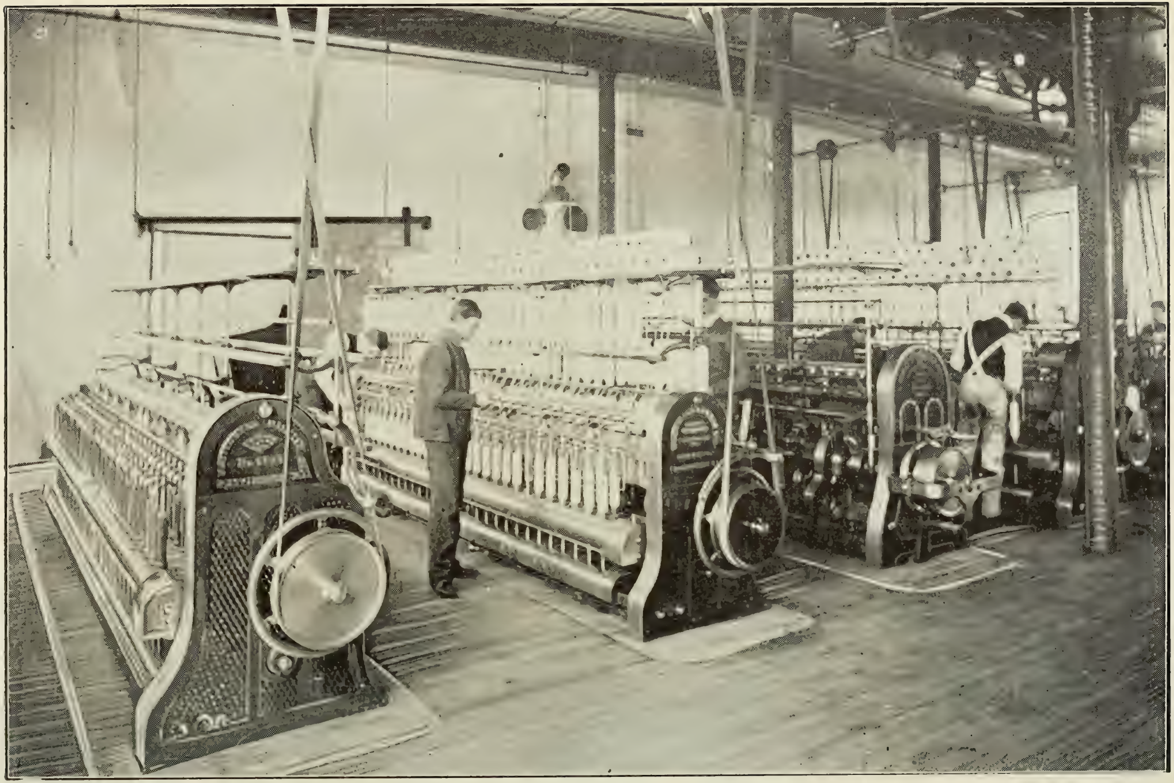
The study of the cotton fibre, including botanical classification of cottons; location of the more important cotton-producing districts; primary species peculiar to each; Egyptian, Brazilian, Peruvian, Arabian, Indian and other cottons; commercial names and comparative values; spinning properties and suitability for the different yarns; American cottons, Sea Island, Orleans, Uplands; commercial grading and classification; the chemical and physical properties of cotton.

Ginning.—History and development of the processes now in use; the roller-gin as applied to the long-staple cottons; its construction and principle of extracting the seed; the rollers, beater, knives; feeding mechanism; proper speeds; setting the parts; their action on the fibre; merits of the roller-gin; the saw gin; its construction and principle of extracting the seed; pneumatic conveyors used in connection; various feeding mechanisms; the apron, rollers and guard; setting, speeding and operating the parts; action of the saws, grate, brush and condensers; different systems of packing the bale; square bale; cylindrical bales; compressing; commercial handling; buying cottons; buying in lots and by grade; advantage of the latter method; points to be considered; detection of moisture and other impurities; methods of handling and drying out damp cotton; selection of grades most suitable for various yarns.

Mixing.—Its object, necessity of; merits of the different systems employed in laying out mixes; proper method of building and pulling down mixes; blending stocks; proportioning grades; examination of lengths and diameters of the fibres; color, cost, waste and production considered; trial mixes; records of percentages of waste; comparative tests for strength and for economical production; spinning qualities considered; the bale breaker, its action, capacity, cost and construction; mixing calculations; pneumatic conveyors; their construction and use; necessity of airing and aging cotton before working; precautions against fires; automatic fire extinguishers.

The Picker Room.—Arrangement of pickers and dust trunks; forms of dust trunks; automatic feeds; mechanisms for regulating the feed; production and cost; the pickers; breaker; intermediate; finisher; the cost, capacity and operation of each; their action and method of opening and cleansing the cotton; analysis and description of their working parts; setting and speeding; air current; dust trunks; feed rolls; beaters; girds and bars; dust cages; method of forming the laps; compression rolls; winding mechanisms; automatic measuring and stop motions; beaters; beater speeds and bearings; bar beaters; frail beaters; porcupine beaters; evening motions; the piano feed; its method of evening the feed; construction and principle of operation; other evening motions; lap changes and calculations; miscellaneous instruction; general practice on the machines.

Carding.—Its history, growth and development; the principle of carding; its object and necessity; types of carding engines, roller cards; stationary top flat cards; revolving top flat cards; the production, cost, construction and merits of each of the above systems; leading methods of setting the flats and rollers; draughts and change gears; percentages of waste; calculating productions; stripping motions and appliances; turning up and clothing cylinders;



PRACTICE ON THE FLY FRAMES.

clothing flats, card grinding frame, traverse, roll and flexible trickle; grinding flats, cylinders, workers and strippers; needle, diamond, plough and hooked points on card wire; clothing flats and cylinders; carding, both white and dyed stock; lap machines and combs; their action and operation explained; railway heads; systems of drawing with and without railway heads; their combination with section carding; independent heads; chain, screw and other evening motions; their construction and use; draught rolls; leather top rolls; metallic rolls; draught calculations and change gears; stop motions; the coiler; its construction and use; drawing and weighting; leather rolls; metallic rolls; stop motions; frame; production and cost of the machines; the one-frame, two-frame and weighting; leather rolls, metallic rolls; stop motions; their mechanical principles; suitable draughts for the various slivers; calculating draughts and draught-change gears; productions of the drawing frame; practice on the machines; the fly frames; slubber, intermediate, roving and jack frames; the principles involved and the construction of the modern machines; their history and development; their mechanisms explained; drawings of their vital parts; the draught rolls; their setting and use; building the bobbin; the flyer leading; the bobbin leading; the builder rail; the differential motion; kinds; its action; drawings of, analyzed and described; the tension and lay change gears: draught and twist changes on slubbers; intermediates, roving and jack frames; calculating the same; productions; proper speeds; setting up and operating the various machines.

SPINNING.

Ring spinning; its history; construction of the modern spinning frame; spindles; kinds in general use; spindle speeds; the theory of spinning; rings; travelers; sizes suitable for different counts; builder motions; their construction; warp and "filling" motions; cams used; traverse; traverse rail; the draught rolls; covering solid and shell rollers; setting the rolls to suit the length of staple; calculation in draughts and draught-change gears; proper draughts and speeds for different counts; twists; soft, medium and hard twists; hosiery and doubling twists; standard twists; change twist gear; draught and twist constants; cap and flyer spinning; principles explained; their disadvantages; cotton yarn measure; changing from one count to another; hank roving and draughts; twists; rules for obtaining the contraction; increasing production economically; ring twisters; wet and dry; reeling; standard skeins; mule spinning; its history and development; self-operating and self-acting mules; the mule head stock; analysis and description of its parts; the sequence of movements; timing the same; speeds of the parts; scroll shaft; back shaft; counter faller shaft; cam shaft; the spindles; method of driving the same; the construction and operation of the carriage; the fallers; building bobbins and cops; the quadrant; its functions; the rolls; draughts; calculations; drawings of the vital parts of the head stock; traveling scavengers; rope and band making; calculations necessary to their production; preparation of yarns for the market; spooling, winding, reeling and bunching yarns; packing, baling and boxing for transportation.

The instruction in carding and spinning consists of illustrated lectures, recitations from technical text-books, and demonstrations, in addition to the large amount of practical work required in operating, taking apart, erecting, repairing, and caring for the several machines.

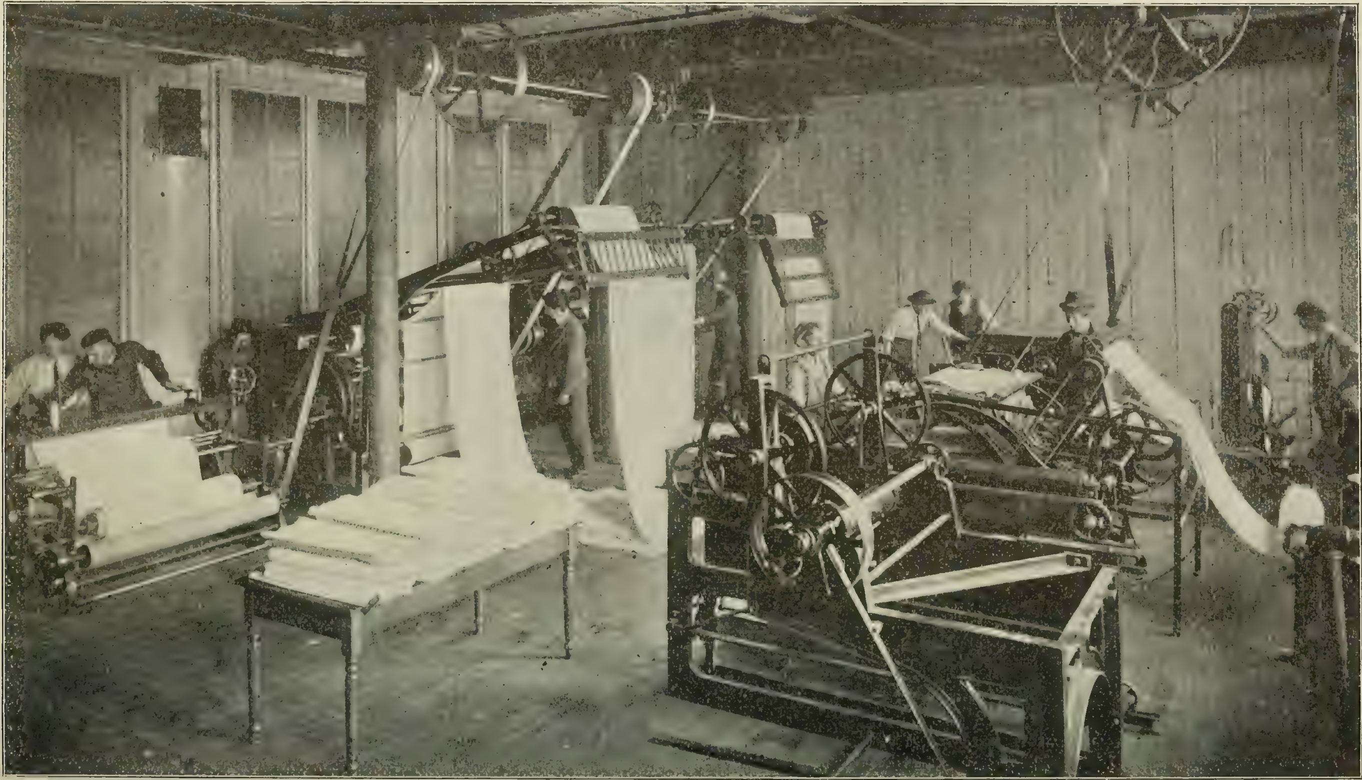
The student will be drilled thoroughly in all the calculations pertaining to carding and spinning.

Especial attention is paid to the grinding and setting of the cards, and to the manipulation of both white and colored stocks.

A stated amount of warp, filling and twist-yarns is required to be produced by each student, he making all necessary calculations and performing all the operations on the machines under the immediate direction of the instructor in charge.

DEPARTMENT OF WEAVING.

The instruction in this department includes: Warpers; types of warpers; their construction; mechanical and electrical stop motions; electrical indicators; long and short chain warpers; loop forming mechanisms; long chain quillers; their use; section warping; pin warping; splitting in pins; proper tensions; building pin warps; beam warping; beamers and creels; the single-end electrical stop motion and indicator; mechanical stop motions; meas-



BRUSHERS, FOLDERS AND NAPPERS.—CLOTH ROOM, TEXTILE DEPARTMENT.

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uring devices; warp and warp yarn calculations; slashing; its object and effect in weaving; slashing warps; slashers, the steam cylinder slasher; advantages and disadvantages of this system; drying surface of the cylinders; increasing production by the wind; hot air slashers; their construction; arranging beams on the creel; the size vat; heating the same; immersion and squeeze rolls; coverings for the rolls; the separator rods; leases; winding mechanism and variable speeds; measuring and cut marking devices; size kettles; receipts for sizing compounds; mixing and cooking sizes; nature of yarns considered in sizing; drawing-in, tying-in and twisting-in warps; the care, cost and construction of loom harness; drawing cross and fancy draws; harness and heddle calculations; reeding; American and English systems of numbering reeds; selection and care of reeds; reeding in plain and fancy patterns; reed calculations; looming warps history and development of weaving mechanisms; hand looms; power looms; plain weaving; shedding, picking, lay, let-off and take-up motions; methods of forming the "shed"; the cam and cam scroll looms; methods of strapping-up, leveling and adjusting the harness; picking motions; principles of their construction; the lay or batten motion; let-off motions; friction and mechanical; take-up motions; positive and conditional; change gears; pick constants; warps stop motions; filling stop motions; protectors, magazine looms; their construction; changing plain looms to weave fancy cotton fabrics; gingham looms; box motions; simple and compound levers for actuating the boxes; box chains; their planning, building, and manner of controlling the boxes; multipliers and multiplier chains; circular boxes; witches, dobbies and "head motions;" open and close shed head motions; single and double cylinder; single and double acting dobbies; chain building for the same; special looms for such fabrics as leno, lappet, bags, towels, etc.; doup selvages; side and center; fringe weaving explained; lectures and practice in loom fixing; lining the loom parts; shuttle troubles and their remedies; filling cutting; the use, care and building of box chains; repeaters and multipliers; boxes controlled by the Jacquard machine; putting in pickers; picker sticks and connections; picker motion; their mechanical construction explained; cam and cone; alternating pick and sliding pick motions; warp stop motion; filling stop motions; knock-off lever, shipper and fork; protector, temples; let-off and take-up motions; Northrop looms; analysis of the filling changing mechanism; proper loom speeds; increasing the production of looms; miscellaneous weaving calculations; finishing; inspection of cloth; detecting and marking imperfections; burling, mending; trimming; singeing and brushing machines; operation and care of the same; emery rolls; sand rolls; wire nappers; washing, tentering and drying machines; folding, doubling and board rolling; methods of numbering, labeling, etc.; stamping and pressing; boxing and bale-packing.

Instruction on weaving, in all its branches, will be given by means of lectures, recitations, demonstrations, and practice on the splendid equipment of looms.

DEPARTMENT OF DYEING.

This Department occupies the east end of the basement in the A. French Textile School. The laboratory and dye house are well equipped with all necessary apparatus, chemicals, dye stuffs, fixing agents, etc., for proper instruction. The School owns a valuable collection of dyed specimens, yarns, chemicals, dye woods, and coloring matters, which are examined by the student.

Dyeing, or, more specially, Textile Coloring, was long considered an art, but it is now rapidly approaching a true science. We study the nature of our material, composition and structure of the various fibres, the properties and behavior of certain chemicals and dye stuffs.

Bleaching of the common fibres demands special knowledge, and rapid advances have been made through careful study of the chemistry of this subject. Large works are erected for the bleaching of cotton in the varied forms of manufacture, and the industry calls for men who have had a good training in chemistry.

It is the object of this course to give the student a clear idea of the fundamental principles which underlie the arts of bleaching and dyeing, by means of lectures, recitations, experiments, practical work and research.

The outline of the course is as follows:

Dyeing and Bleaching, Senior class, are taught by means of lec-

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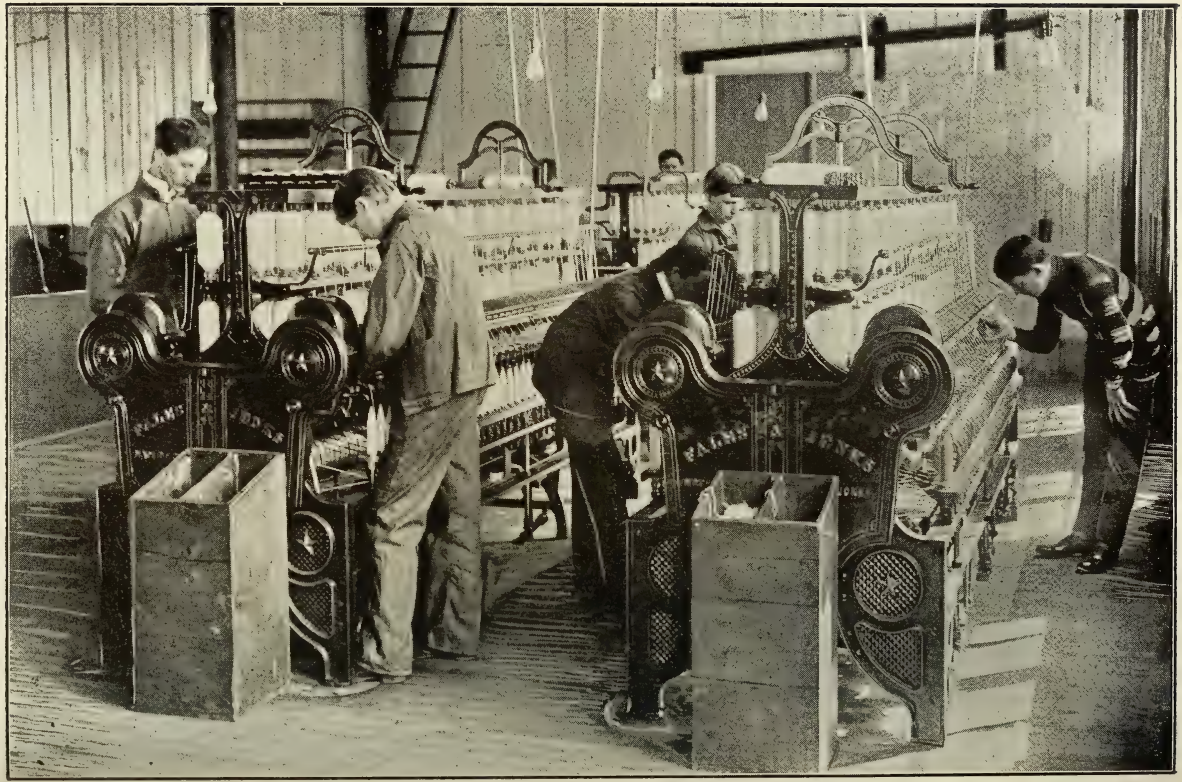


PRACTICE IN RING SPINNING.

tures and recitations two hours per week through the year. The following mentioned lectures are examples: Cotton Bleaching, Mercerized Cotton, Artificial Silk, Wool Scouring, Silk, Linen, Carbonizing, History of Dyeing, Theories, Water, including impurities and purification, Natural Coloring Matters, Artificial Dye Stuffs, Mordants.

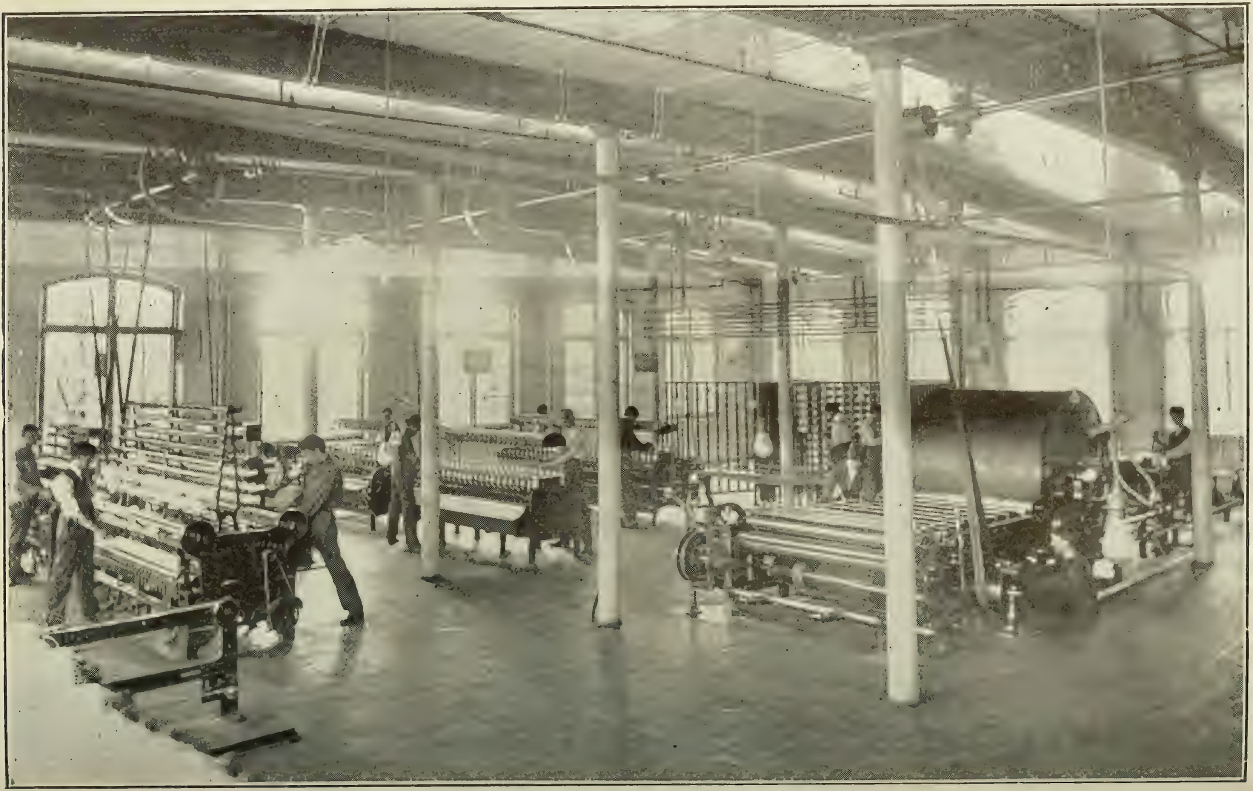
Experimental Dyeing. The Senior Class works in the laboratory and dye-house four hours per week through the year. The student bleaches cotton cloth and yarn, and dyes several kinds of textile materials on a small scale, being furnished with cotton, wool and silk, at cost, for this purpose; but the class occasionally, and at the discretion of the professor, dyes larger quantities of cloth and yarn. Each and every student is required to mount specimens of his work on suitable cards, with the necessary notes, for future reference; several of these cards are retained as the property of the School. The work includes; *Technology of Vegetables and Animal Fibres*: Cotton, linen, wool, silk, etc., chemical and physical properties, microscopical study, action of chemicals, heat, frost, etc. *Operations Preliminary to Dyeing*: Bleaching, wool scouring, silk reeling and scouring, action of soaps, etc. *Chemicals not Dye Stuffs*: Aluminum, iron, tin, chromium, copper and organic mordants; fixing agents, leveling agents and assistants. *Natural Coloring Matters*: Application of indigo, logwood, cutch, fustic, Brazilwood, cochineal, etc. *Artificial Coloring Matters*: Examples from each class are studied and applied by the student. *Compound Shades. Matching off. Testing and Valuation of Dye Stuffs*: The samples dyed are tested as to permanence against the action of light, friction, washing, acids, alkalies. *Detection of Dyes in the Fibre. Comparative Tests. Manufacture of Dyes*: The class prepares dyes and then applies them properly.

TEXTILE MECHANICS AND MILL ENGINEERING.

Besides understanding the different processes of cotton manufacture, a mill superintendent is called upon to manage the motive power, operation and general economy of an entire plant. To this end a special course has been provided in the department of Mechanical Engineering.

It includes, first, during the third term of the Middle year, a thorough investigation of the laws of statics, with special attention to the solution of practical problems by moments, three forces meeting in a point, resolution of forces, resultant of parallel forces and center of gravity of bodies. The simple machine and the underlying principles of the lever, wheel and axle, inclined plane, pulley, screw, etc., are discussed; together with friction, its cause and effect. The student then takes up the study of dynamics, based on Newton's laws of motion, and problems involving mass, force, momentum, acceleration and inertia are theoretically investigated. In connection with this course a series of lectures on the kinetic energy of fly-wheels and the bursting tendency due to centrifugal force, are given. Also means of determining efficiency and horse-power of water-wheels. In the first term of the Senior year the student takes up Strength of Materials. In studying this subject, attention is directed especially to the action of simple stresses in the different building materials. The transverse strength of beams is thoroughly investigated, and expressions of the bending moment and resting moment are thoroughly brought out; the resiliance of materials is introduced and methods are explained for determining the formula for torsion in shafts, and the amount of horse-power transmitted. In connection with this work, a series of lectures are given on designing lap and butt joints, and methods of determining their efficiency, including the pressure in boilers, tubes, water-pipes, etc. During the third term a series of lectures are given on lattice girders of the Warren, Howe and Pratt type, with special attention to the designing of roofs and towers.

The second term of the Senior year is devoted principally to the steam-engine, power transmission and machine-design. In this course special attention is given to the economy of the different types of boilers, and of fuel and water; with means of preventing corrosion, incrustations and general destructive elements. Attention is given to the management and design of the principal settings and fittings, stacks, economizers, pumps and injectors. In the study of the steam-engine the student takes up first the theoretical



SPOOLERS, TWISTERS, WARPERS AND SLASHER.

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types and then from the mechanics of the steam to the commercial types. Especial attention is given to the design and operation of errors in these by the indicator diagram. In the third term of the Senior year a thorough course is given in Mill Construction, Mill Ventilation, Mill Sanitation and Fire Protection. Humidifiers, sprinkler systems and heating systems are studied in detail. The student in this course also has the advantage of attending a course of lectures in the management and operation of manufacturing plants.

SPECIAL TEXTILE COURSE.

In order to accommodate to a limited extent a class of young men who may not have the time or means to take the full Textile Course, a special course in Textiles is offered, which may be finished in two years. As students taking this course are in the mill at practice every day in the week, in order that they may not interfere with the regular students, only a limited number (24) can be taken. All applicants for this course are required to pass an examination in Arithmetic, and must be especially proficient in the following subjects: Compound numbers, Ratio and Proportion, Percentage, Involution and Evolution, Alligation and Mensuration. In case there are more than twenty-four those who are most proficient in the Arithmetic examination will be allowed to enter. Applicants for this course will be received only at the beginning of the year. The examination for this course will be held Sept. 30, 1903, at 9 a.m. No students will be received in this class at other times. No student of the school is eligible to this course after becoming deficient in any of the other courses. No students will be received in the Textile Department unless they are taking the regular course, or the special course here mentioned. The requirement in Arithmetic is absolutely necessary for the success of the student. In the practical work which he receives in the mill, in the calculation of speeds, etc., no time is available for drilling the student in the principles of Arithmetic.

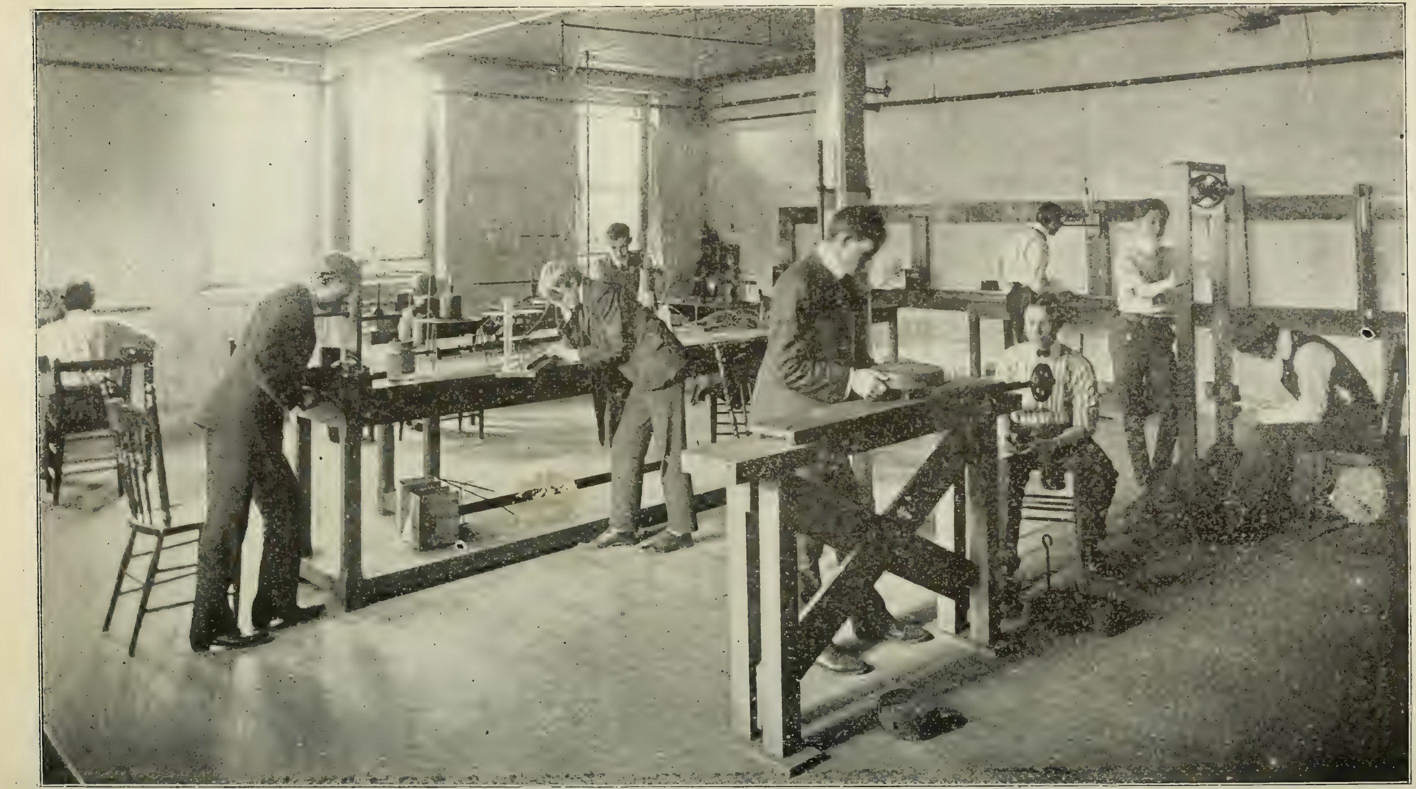
All of his time is taken up in practice, and such recitation work as will benefit his practical knowledge of Textile work. This course is not accompanied by a certificate or degree. Students in this course will be admitted only at the beginning of the fall session.

DEPARTMENT OF PHYSICS.

The aim of this department is to present the fundamental principles of Physics, the experimental basis upon which they rest, and, as far as possible, the mathematical reasoning employed in the deduction of various physical formulas. The student is not only made acquainted with certain physical laws in accordance with which physical events occur, but is taught that all physical quantities can be represented by symbols, and that certain mathematical relations exist between them, in consequence of which logical deductions can be made.

The study of Physics is taken up at the beginning of the Junior year in a thorough and systematic way. Numerous problems are assigned in the recitations, of which there are two per week, in order to thoroughly familiarize the student with the significance and practical use of the principles which he learns, and the physical formulas which he sees deduced. One experimental lecture and two recitations per week are given in this course.

The lecture-room is provided with various facilities for experimental demonstration. By means of shades the room can be darkened when needed; the lecture-table is provided with a water-tank, and water, gas and electricity from the dynamo are available; also current from a storage battery of six chloride accumulator-cells. There is a good double stereopticon with arc lamps and mechanical dissolver; also a projecting lantern with J. B. Colt automatic feed arc-lamp, and supplied with vertical attachment—an accessory to a lecture-room which is indispensable for the satisfactory presentation to a large class of a great variety of physical phenomena. The department is also supplied with a polariscope for the projection on the screen of the colors of crystalline plates, and a collection of about thirty-five lantern-slides used



IN THE PHYSICS LABORATORY.

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in lectures on Physics. The outfit of apparatus for lecture experiments is large, and additions to it are constantly being made. Among the many pieces of apparatus may be named: a hydraulic press, a large rotary air-pump, rotating apparatus with accessories, a mandrel for high speed rotation, gyroscope, balances, Hero's fountain, barometers, Holtz machine, six-inch spark Ruhmkorff induction-coil, Geissler and Crookes tubes, several X-Ray tubes and fluoroscope, a battery of Leyden jars, wireless telegraph apparatus, apparatus for the mutual action of currents, tangent galvanometers, resistance boxes, thermopile, two large parabolic reflectors, lenses, concave and convex mirrors, apparatus for demonstrating the laws of reflection and refraction of light, revolving mirror and manometric capsule, Koenig's interference apparatus for sound, organ-pipes, tuning-forks, siren, sonometer, spectrometer, diffraction-gratings, prisms and many other pieces.

The equipment of the physical laboratory is very complete, a large addition having been made during the present year, both by construction in the shops of the institution and by purchase. For laboratory work in electricity, the department is supplied with a sensitive Thompson mirror galvanometer, a Siemens mirror galvanometer, a mirror galvanometer by Queen & Co., a very sensitive D'Arsonval galvanometer, a Rowland's patent D'Arsonval galvanometer, a large coil tangent galvanometer, three small D'Arsonval galvanometers, a magnetometer, a 5-dial Wheatstone bridge, two slide wire bridges, ten resistance-boxes of various sizes, a copper voltameter, an earth coil, a ballistic galvanometer, a Carhart-Clark standard cell, a 1-M. F. standard condenser and a Kempe discharge key for capacity tests.

The course in laboratory instruction includes experimental verification of the physical formulae, the determination of various physical constants, and is designed to give the student practice in the use of instruments of precision and a certain amount of proficiency in physical manipulation. Among the experiments performed in this laboratory are the following: Determination of the acceleration of gravity by the physical pendulum; of the modulus of torsion of a steel wire; of the coefficient of friction between two bodies; of the relation between power and load of a wheel and axle; verification of Boyle's Law; determination of radiation constant of a calorimeter; of the heat of fusion of ice; of the heat of vaporization of water; of the specific heat of a metal; verification of the laws of vibrating strings by sonometer; determination of index of refraction of glass by spectrometer, of distance between the lines of a diffraction grating; the measurement of resistance by Wheatstone bridge; measurement of E. M. F. and resistance of batteries; of magnetic moment of magnet by magnetometer; of the horizontal intensity of the earth's field; of the capacity of condensers; of temperature coefficient of resistance of copper; of the magnetic properties of iron by ballistic galvanometer method.

Carefully written reports are required on all experiments performed. These are, in fact, considered an important feature of the course, for in this way the student acquires clearness and facility of expression in the description of scientific investigations.

The following courses are offered in this department:

1. GENERAL PHYSICS.

The aim of this course is to give a general survey of the field by means of experimental lectures and study of a text-book. Three hours per week during the first year, and four hours per week during the first term of the second year.

Required of all students except Textile Engineers.

2. GENERAL PHYSICS—SHORT COURSE.

This course covers the same ground as course 1, except that less time is devoted to the subject. Three hours per week throughout the year.

Required of Textile Engineering Juniors.

3. PHYSICAL LABORATORY.

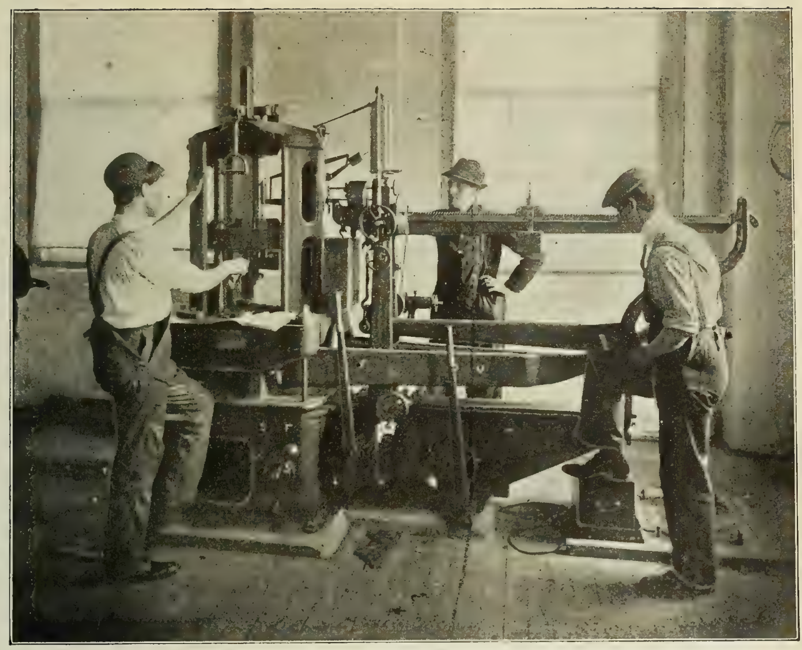
Three hours per week throughout one year, beginning with the third term.

Required of all students except Textile Engineers.

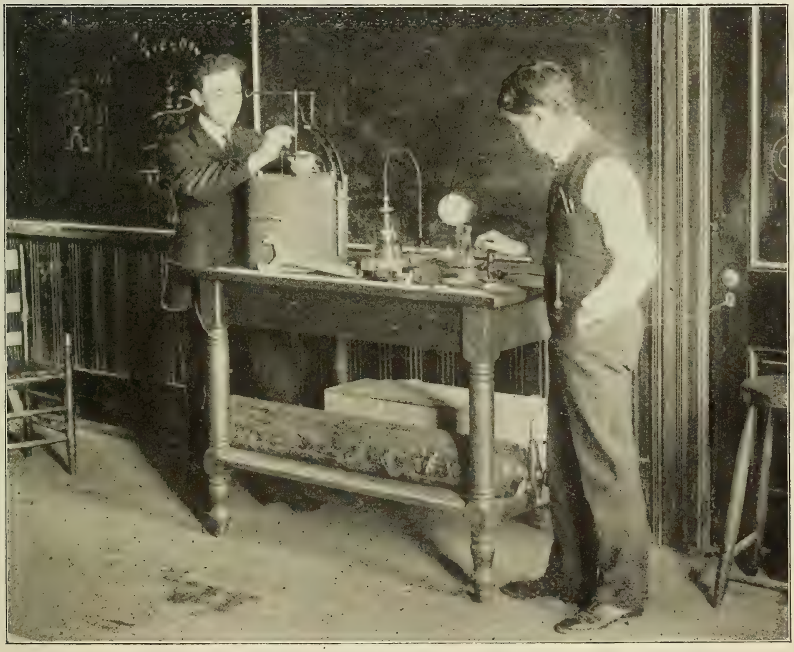
4. PHYSICAL LABORATORY—ELECTRICAL MEASUREMENTS.

Advanced course for Electrical Engineers. Three hours per week during the second term.

Required of Electrical Engineering Middlers.



100,000 LB. AUTOMATIC AND AUTOGRAPHIC TESTING MACHINE.
EXPERIMENTAL LABORATORY.



MAHLER CALORIMETER, DEPARTMENT OF CHEMISTRY.

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DEPARTMENT OF EXPERIMENTAL ENGINEERING.

The object of courses in this department is to enable the engineering student to recognize and apply such natural forces and materials as are adapted to his uses.

In order that he may be capable of intelligently and skilfuly designing, constructing and supervising all kinds of machinery, it is necessary that he should pursue a thorough and extensive course of training, both theoretical and practical. While theoretical courses are of primary importance in affording mental discipline not to be derived from practical research, it will be seen that the latter is made to go hand in hand with the former, it being believed that from continual practical applications of theoretical conclusions a broader and more tangible conception of their truths may be derived. It is not, then, at the expense of the abstract mathematical law that time is given to show how it may be involved in the construction of the simplest machine, for not only is a new and suggestive meaning thereby given to the various contrivances of the mechanism, but an insight into the whole significance of the law itself is gained, which can be acquired only by observing practical applications.

To explicate theoretical principles, however, is not the only value of the experimental work of the department. If the student desires to go from college to the manufacturing world, it is essential that he should be familiar with working machines, methods of managements, and as much of the every-day detail of engineering work as it is possible for him to acquire as a supplement to his higher training.

LABORATORY DEPARTMENT.

The Laboratory Equipment consists of the following machines and instruments:

†One Olsen Testing machine.

†One Riehle Automatic Autographic testing machine.
†One Olsen Torsion Testing machine.
†One Lubricant or Oil Testing machine.
†One Cement Testing machine and complete outfit for cement.
*One 6-H. P. Gas Engine.
†One 60-H. P. Corliss Engine.
†One 500-pound ice-making plant.
*One set of Crosby Steam Indicators with springs complete.
*One Throttling Calorimeter.
†One Pulsometer Steam Pump.
†One Pelton Motor.
*Thermometers.
*One Pump Governor.
*One 6-H. P. Automatic Steam Engine.
*One Model Hydraulic Press.
*One Detroit Steam Separator.
*One Crosby Gauge Tester.
*One 200-pound Steam Gauge.
*One 300-pound Water Pressure Gauge.
*One Vacuum Gauge.
*One Steam Pump.
*One Pyrometer.

LABORATORY EXPERIMENTS.

Strength of Materials: Tensile and Transverse; Compression and Torsion; Brick; Stone; Cement; Flexure.

Lubricants: Coefficient of Friction; Viscosity; Chill-test; Flash-test.

Calibration: Indicator-springs and Steam-gauges; Indicator Drum-spring; Water-meters; Gas-meters; Planimeters.

Steam Engine: Indicator-practice; Valve-setting; Clearance; Calorimetry; Barrel and Throttling.

Efficiency Tests: Steam-boiler; Water-motor; Steam-pump; Steam-engine; Gas-engine; Pulsometer; Injector; Centrifugal Pump; Hydraulic Ram.

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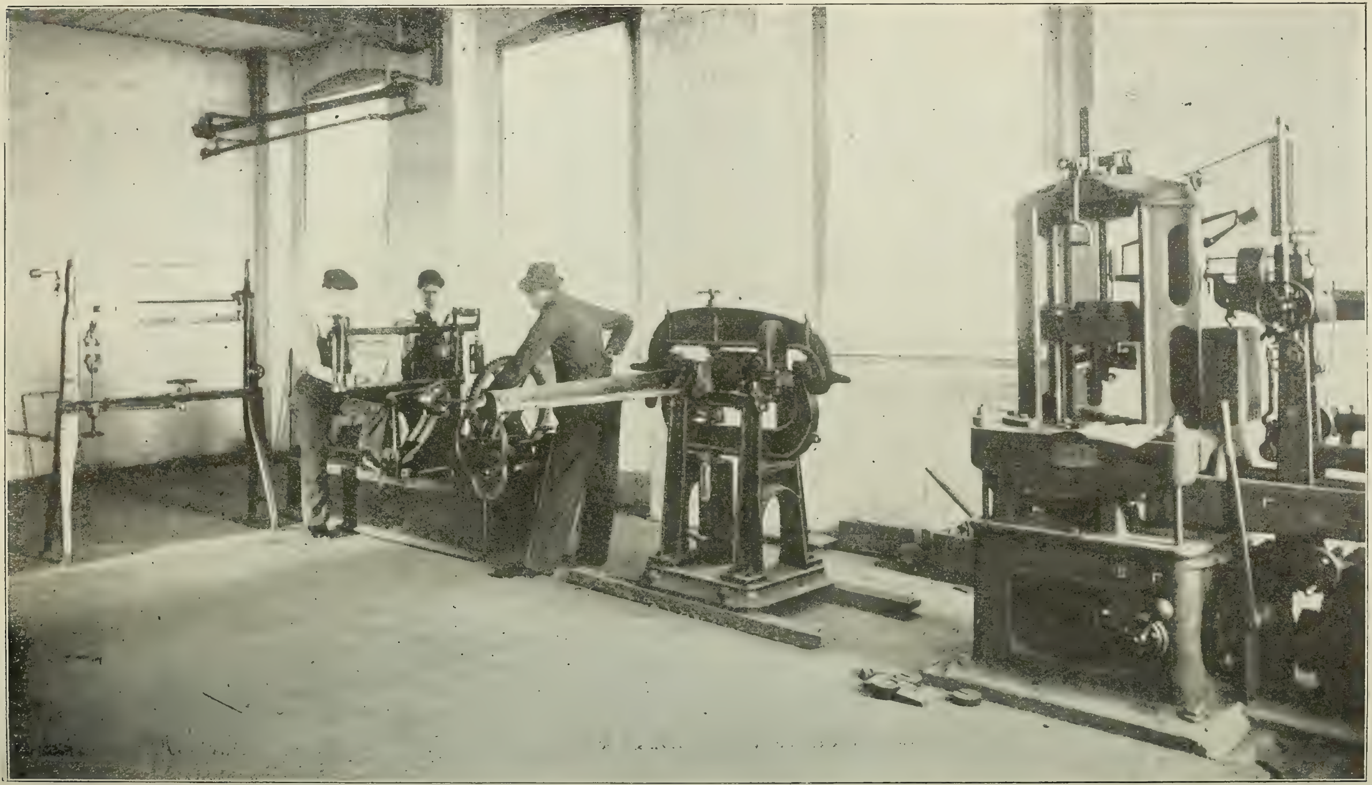
*Donation.
†Partial donation.



CEMENT, TORSION, LUBRICANT AND TENSILE TESTING MACHINES.—EXPERIMENTAL LABORATORY.

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DEPARTMENT OF PHYSICAL EDUCATION.

The ultimate success of a nation is dependent upon its health.

The educated man is he whose body, as well as mind, is the obedient servant of his will.

The nation or community, made up largely of poorly nourished, weak, or sickly individuals, is never the one to reach any high degree of success in anything.

Occasionally a man, who is weak and unhealthy, reaches a prominence in his calling; but he is such an *exception* to the rule, that he is *always* pointed to as a genius. Not because he excels all the other workers in his line, but because he is successful *in spite* of bad health or weak body. On the other hand if a strong, healthy man who has taken athletic exercise happens to break down or dies of heart or lung trouble, no matter what the immediate cause may be, there are a certain number of people who call attention to the circumstance and attribute it to the fact that "he played football," "worked in a gymnasium" or "took part in some athletic sport."

If the same man had not failed no attention would have been paid him as an athlete, no matter how successful he might become in his business or profession.

And yet these two cases are significant of a certain truth—that the weak, sickly man, *if* successful, causes remark. And the strong healthy man who fails likewise causes remark. They are exceptions which prove a rule which would read: Everything being equal, except health and strength, the man who has the two last qualifications will succeed where the weak and unhealthy break down and fail. This would be the source of a great deal of discouragement to those with weak, sickly bodies if it were not for the fact that they can become strong and healthy if they so desire, the only price to pay being proper care and exercise of their bodies.

No man is too old to be improved by a judicious course of Physical training. And any young man of average build can by systematic exercise develop his body and acquire such a degree of health, strength and vigor as to seem almost miraculous.

The Department of Physical Culture of the Georgia School of Technology has for its aim the promotion of the health and strength of the student body as a whole; the development of "a sound mind in a sound body," that each may be enabled to do his work vigorously and with pleasure. And after he has earned the right to rest, by the success that will attend such work, he will have a healthy body which will enable him to enjoy life and not consider it a burden. With this end in view, we encourage all forms of athletic and gymnastic exercises as "means to an end."

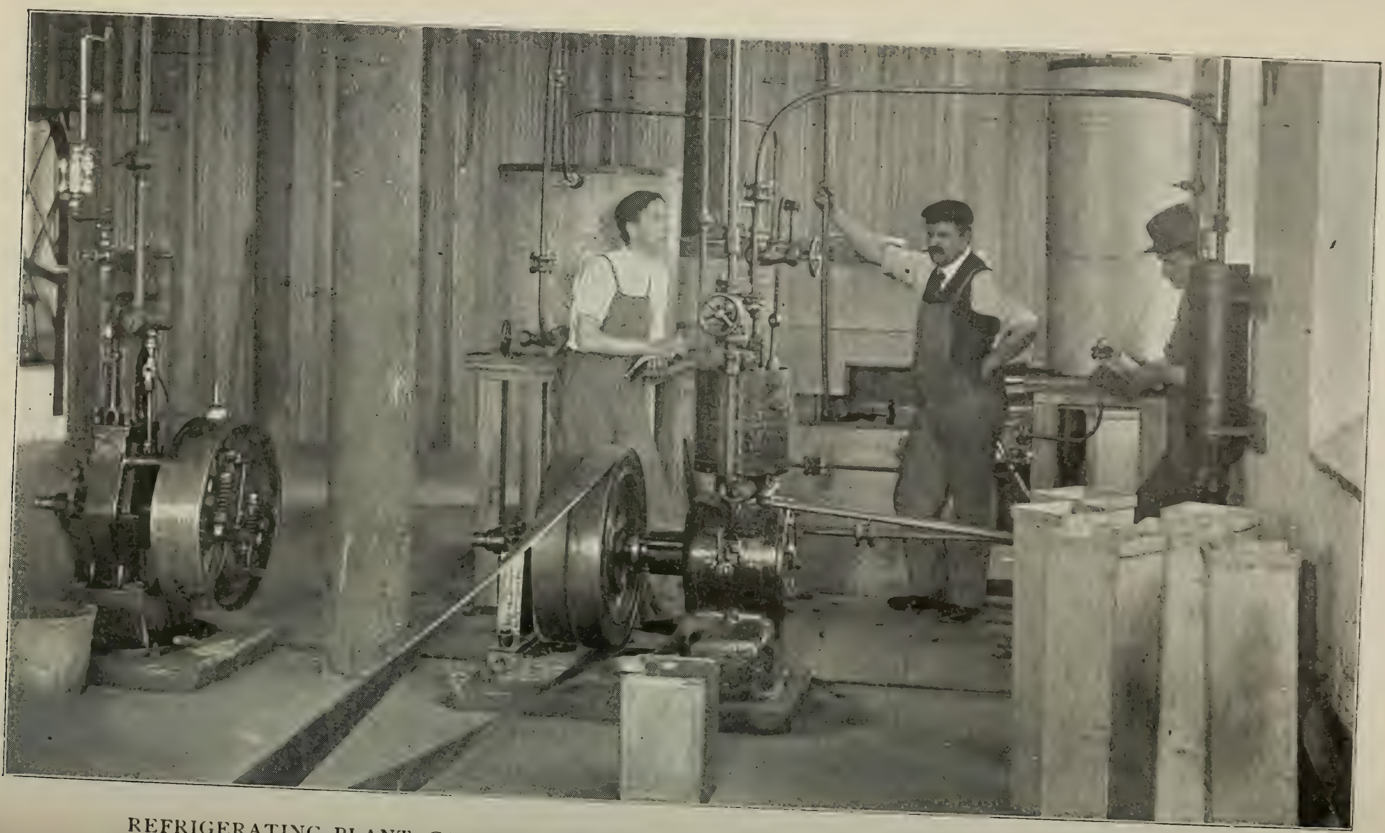
Every student is encouraged to take exercise in the Gymnasium and on the Athletic Field.

The gymnasium is a large, airy hall, seventy by forty feet, with a high ceiling permitting the use of flying rings and other swinging apparatus. Adjoining this are the Physical Director's office, bathrooms, provided with hot and cold shower-baths, dressing-rooms, etc. The history of the past and present shows that the community which pays attention to the physical well-being of its members is the one which is most successful in all things. Greek History was made by the nation which paid especial attention to Physical Education. During the past year our Gymnasium has been refitted, old apparatus remodeled, and new apparatus of the most modern type added.

We are prepared to conduct this department upon the most scientific lines, and our outfit for physical examinations consists of a universal dynamometer, scales, callipers, spirometer, morphograph, measuring rod, etc., etc., and is surpassed by none in the country. Recognizing the fact that the student entering the Apprentice class is at the period when he is passing from boyhood to manhood, and that his future success in life is largely dependent upon a strong, healthy body, we have made a graded course in gymnastics compulsory for all members of this class.

Each member of the Apprentice class is required to report to the Director of Physical Culture, who will give him a thorough examination and prescribe the exercise he is to take.

In addition to the physical examination, an examination in light and heavy gymnastics is given at the beginning of the term, and each man placed in a squad according to the grade he makes.



REFRIGERATING PLANT, CAPACITY 500 LBS. ICE PER DAY.—EXPERIMENTAL LABORATORY.

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Examinations are made at the end of each term, thus enabling any one who applies himself to pass to a higher grade. Each student in the Apprentice Class is required to supply himself with a gymnasium uniform and shoes at a cost of about two dollars.

Three principles should form the foundation of any system of gymnastics:

1. Recreational, because this is the part of the work which renews and strengthens all the vital processes of life and sends the man out with a bright eye, a more elastic step and a stronger body to take up the burden of life.

2. Educational. This part educates the body and mind that they may co-ordinate and work together, thus doing a maximum amount of work with a minimum expenditure of energy.

3. Medical. This branch of the work enables the examiner to ascertain the condition of the student, and if there is any departure from the normal to prescribe work which will correct it. Any student of the school can procure a thorough physical examination by making special arrangements with the Director.

COURSE IN GRADED GYMNASTICS.

First—Work on pully weights and other light apparatus to develop the muscular system, heart and lungs.

Second—Light combinations, e. g., Indian Clubs, etc., to develop grace, co-ordination and self-control.

Third—Work on the Heavy Apparatus to develop strength, physical judgment, muscular control, agility and courage.

Fourth—Competitive exercises to develop judgment, coolness, self-confidence, etc.

ADVANCED GYMNASTICS.

All students are encouraged to do individual work and classes in advanced gymnastics are formed.

A Gymnastic Exhibition and contest for the college championship is held annually.

ATHLETICS.

Recognizing the value of Athletic contests as a means of promoting bodily health and vigor, and also developing patriotism, discipline, self-confidence and courage, all forms of Inter-collegiate games, such at football, baseball, tennis, track and field sports, are encouraged by the faculty.

Special attention is paid to beginners who are desirous of taking athletic exercise. The campus in front of the school has been laid out with running tracks, jumping and pole vaulting paths, circles for shot, hammer, etc., etc.

BASEBALL AND FOOTBALL.

Another large field has just been finished for baseball and football practice. These games are in charge of a competent coach, who devotes his whole time to these two branches of athletics.

All athletic sports are under control of the Faculty.

COURSE OF STUDY.

(Numbers following subjects indicate hours per week.)

SUB-APPRENTICE YEAR.

(Same for all Courses.)

FIRST TERM.

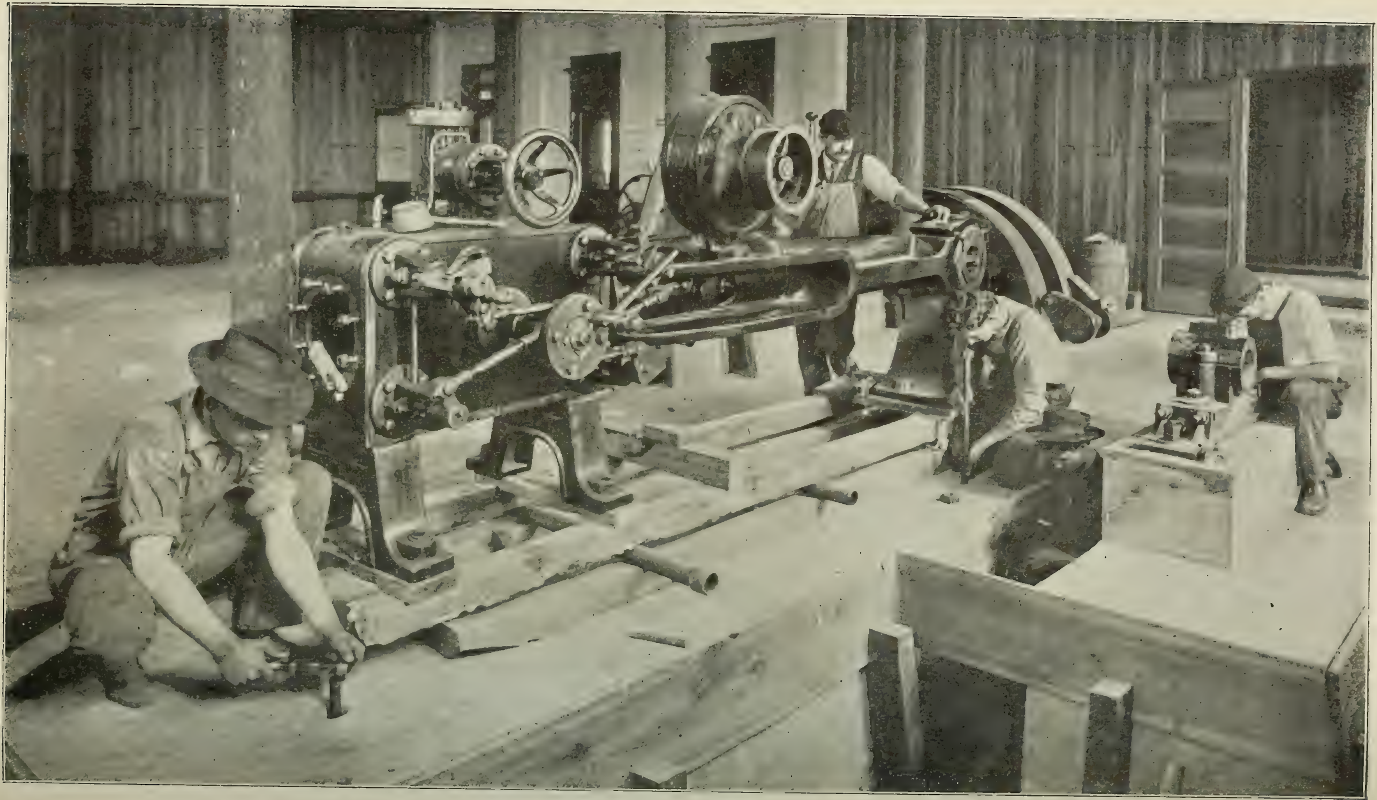
October to January (12 weeks.)

Mathematics (5)—Elements of Algebra.
Mathematics (5).—Plane Geometry.
English (5).—Grammar.
Shop-Work (8).

SECOND TERM.

January to April (12 weeks).

Mathematics (5)—Elements of Algebra.
Mathematics (5).—Plane Geometry.
English (5).—Grammar; English & American Classics.
Shop-Work (8).



INSTALLING THE 60 H. P. CORLISS ENGINE, MAY 1, 1903.—EXPERIMENTAL LABORATORY.

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THIRD TERM.

April to June 15 (12 weeks).

Mathematics (5).—Elements of Algebra completed.
Mathematics (5).—Solid Geometry.
English (5).—Grammar; English & American Classics.
Shop-Work (8).

MECHANICAL ENGINEERING.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry; and Trigonometry (completed.)
English (4).—Rhetoric; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (4).—Free-hand; Geometric; Linear; Perspective Sketching.
Shop-Work (12.)

SECOND TERM.

Mathematics (5).—Higher Algebra.
English (4).—Rhetoric; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (8).—Instrumental Linear; Descriptive Geometry Drawing.
Shop-Work (12.)

THIRD TERM.

Mathematics (5).—Analytic Geometry.
English (4).—General History; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (8).—Descriptive Geometry Drawing.
Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Higher Algebra.
English (4).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Mechanics.
Shop-Work (8).

SECOND TERM.

Mathematics (5).—Analytic Geometry.
English (4).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Light and Heat.
Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Geometry.
English (3).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (6).—Heat and Electricity (3); Laboratory, Mechanics and Sound (3).
Surveying (4).—Use of Level, Compass and Transit.
Shop-Work (8).

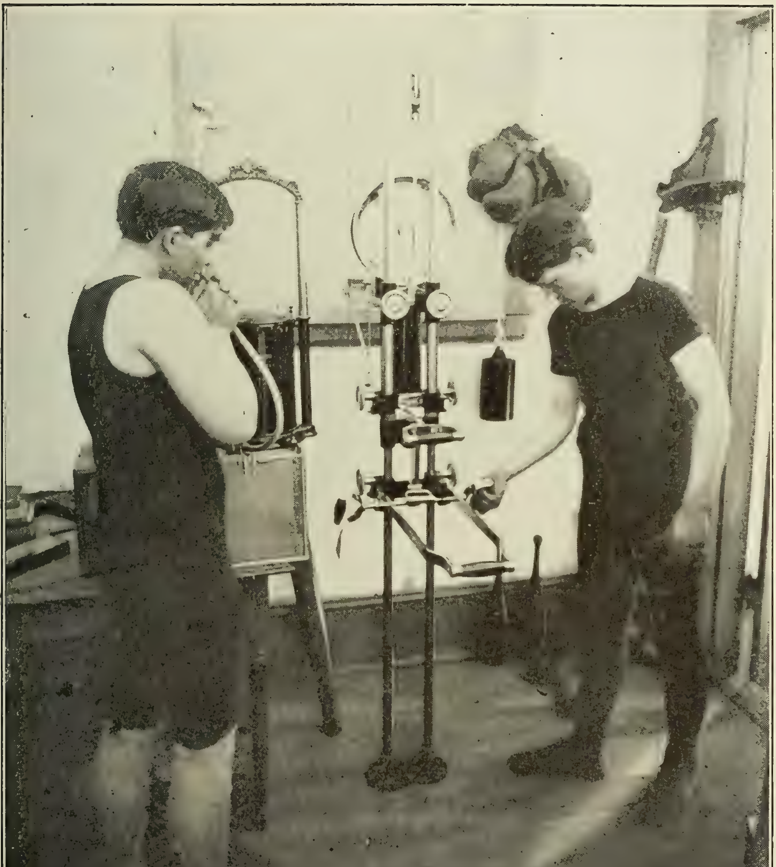
MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Calculus.
English (3).—Political Economy; Readings; Essays.
Drawing (4).—Machine Drawing to Scale.
Engineering (3).—Kinematics and Mechanism.
Physics (7).—Electricity and Magnetism (4); Laboratory, Heat and Light (3).

SECOND TERM.

Mathematics (5).—Integral Calculus.
English (3).—Political Economy; Readings; Essays.



GYMNASIUM OFFICE, SHOWING SPIROMETER AND DYNAMOMETER

The latter records over 100 strength tests, and is the only one south of the large Universities.

Chemistry (3).—Fuels and Metallurgy.
Drawing (4).—Spur, Bevel & Worm Gearing.
Engineering (3).—Mechanism; Materials; Machine-Design.
Physics (3).—Laboratory; Electricity and Magnetism.
Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.
English (3).—American Literature; Readings; Essays.
Chemistry (3).—Metallurgy.
Drawing (4).—Machine Design.
Mechanical Engineering (3).—Mechanics of Materials.
Civil Engineering (3).—Hydraulics.
Shop-Work (8).

SENIOR YEAR.

FIRST TERM.

English (2).—English Literature; Criticisms; Debates; Readings.

Drawing (8).—Special Problems in Designing Machinery.

Mechanical Engineering (11).—Analytic Mechanics (4); Steam-Engine and Other Prime Movers (4); Mechanics of Materials (3).

Experimental Engineering (3).—Work in Testing Materials.

Electrical Engineering (7).—Electric Power Distribution Laboratory (3).

Shop-Work (4).

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (11).—Analytic Mechanics (4); Steam-Engine and Other Prime Movers (4); Mechanics of Materials (3).

Experimental Engineering (3).—Work in Testing Materials.

Shop-Work (8).

THIRD TERM.

English (2).—English Literature; Debates; Readings.
Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (11).—Steam and Gas Engines (4); Valve-Gears (2); Machine-Design, Text (3); Framed Structures (2).

Experimental Engineering (3).—Work in Testing Materials.

Thesis Work (4).

Shop-Work (8).

ELECTRICAL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Calculus.

English (3).—Political Economy; Readings; Essays.

Physics (7).—Electricity and Magnetism (4); Laboratory Heat and Light (3).

Engineering (3).—Kinematics and Mechanism.

Drawing (4).—Detail and Assembly Drawing.

Shop-Work (4).

SECOND TERM.

Mathematics (5).—Integral Calculus.

English (3).—Political Economy; Readings; Essays.

Chemistry (3).—Fuels and Metallurgy.

Physics (6).—Laboratory, Electricity and Magnetism.

Engineering (3).—Mechanism; Materials; Machine Designs.

Drawing (4).—Gear and Cam Drawing.

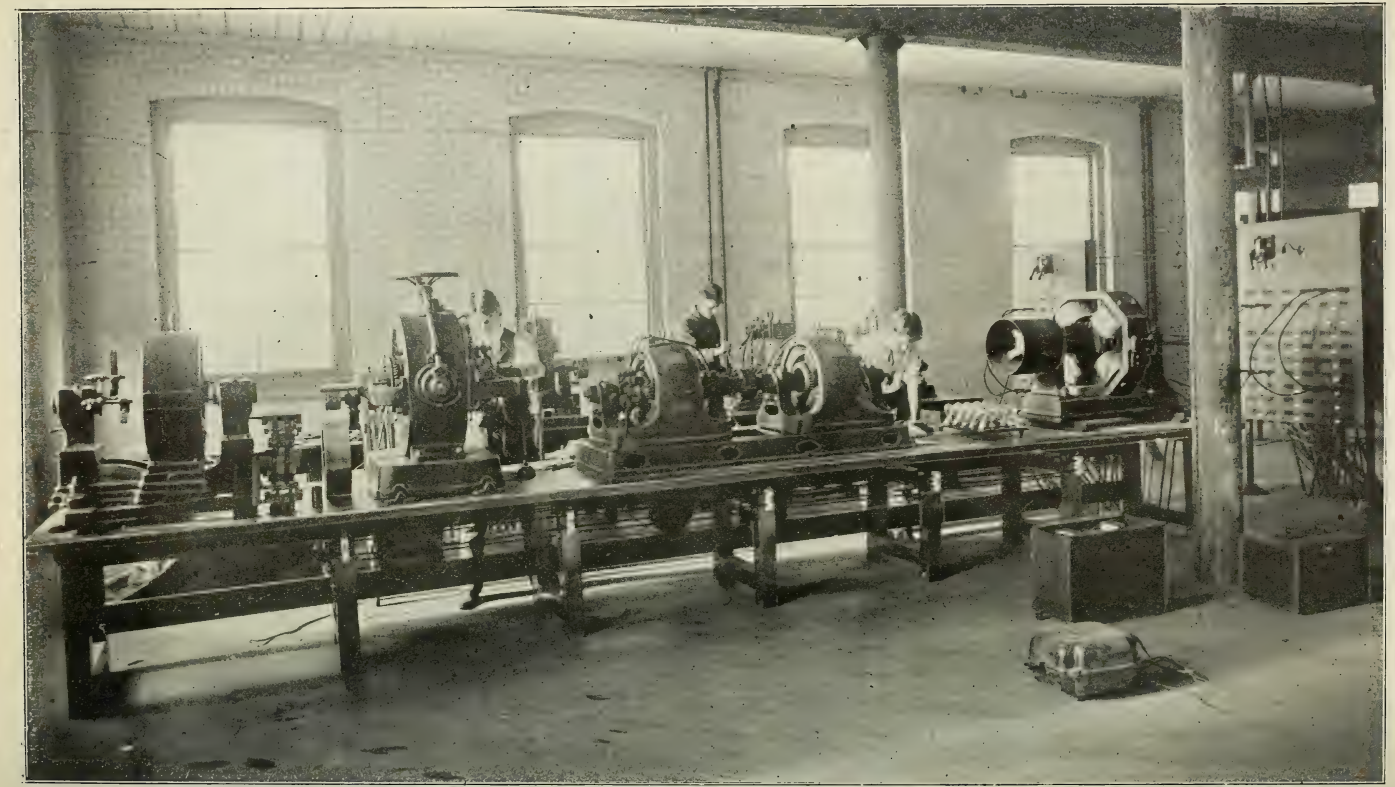
Shop-Work (4).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.

English (3).—American Literature; Readings; Essays.

Chemistry (3).—Metallurgy.



THE ELECTRICAL LABORATORY.

Electrical Engineering (5).—Direct Current Machinery.

Drawing (4).—Motion Diagrams.

Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

Mathematics (4).—Analytic Mechanics.

English (2).—English Literature; Criticisms; Debates; Readings.

Electrical Engineering (10).—Illumination (2); Alternating Current Machinery (5); Laboratory (3).

Experimental Engineering (6).—Strength of Materials (3); Laboratory (3).

Shop-Work (4).

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Electrical Engineering (17).—Alternating Current Machinery (3); Design (6); Laboratory (3); Telephone and Telegraph (2); Electro-Chemistry (3).

Experimental Engineering (6).—Steam Engine (3); Laboratory (3).

Shop-Work (4).

THIRD TERM.

English (2).—English Literature; Debates; Readings.

Electrical Engineering (14).—Alternating Current Machinery (2); Design (6); Power Plants (3); Laboratory (3).

Mechanics (3).—Hydraulics.

Shop-Work (4).

Thesis.

CIVIL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Calculus.

English (3).—Political Economy; Readings; Essays.

Engineering (7).—Field Engineering (4); Railroad Surveying; Topographical Surveying (3).

Physics (7).—Electricity and Magnetism (4); Laboratory, Heat and Light (3).

Shop-Work (4).

SECOND TERM.

Mathematics (5).—Integral Calculus.

Chemistry (3).—Fuels and Metallurgy.

English.—Political Economy; Readings; Essays.

Engineering (8).—Location and Construction of Roads and Pavements (3); Stereotomy and Shades, Shadows and Perspective (2); Field Practice (3).

Physics (3).—Laboratory, Electricity and Magnetism.

Drawing (4).—Stereotomy.

THIRD TERM.

Mathematics (5).—Analytic Mechanics.

Chemistry (3).—Metallurgy.

English (3).—American Literature; Readings; Essays.

Engineering (6).—Mechanics of Materials (3); Hydraulics (3).

Drawing (4).—Shades, Shadows and Perspective.

Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

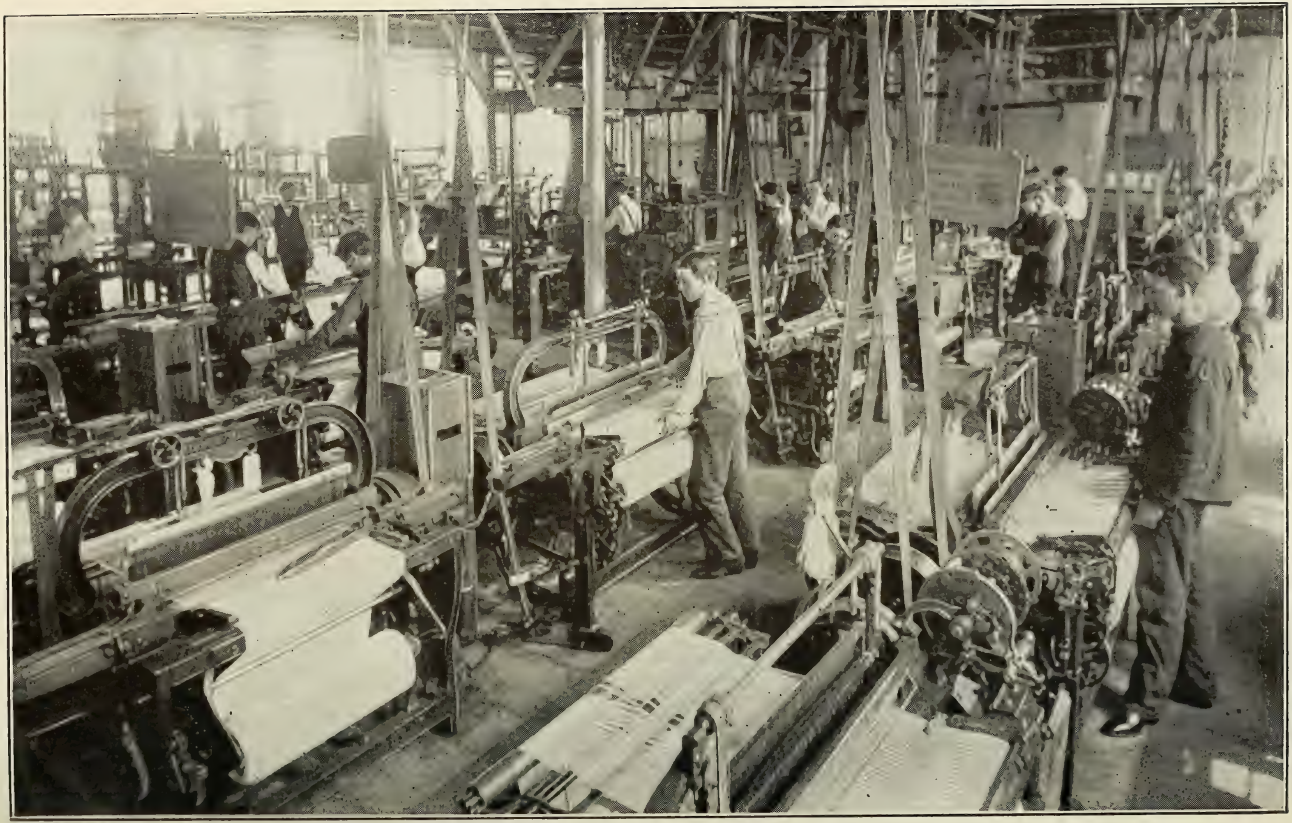
Mechanical Engineering (7).—Analytic to Mechanics (4); Mechanics of Material (3).

English (2).—English Literature; Criticism; Debates; Readings.

Civil Engineering (9).—Masonry Structures (4); Hydraulic Machinery (3); Topographical and Geodetic Surveying (2).

Experimental Engineering (3).—Materials Laboratory.

Drawing (4).—Topographical and Geodetic Mapping.



PRACTICE ON POWER LOOMS.

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Civil Engineering (8).—Framed Structures (5); Municipal Engineering (3).

Experimental Engineering (6).—Steam-Engine (3); Steam Engine Laboratory (3).

Drawing (4).—Designs of Structures.

THIRD TERM.

English (2).—English Literature; Debates; Readings.

Civil Engineering (8).—Municipal Engineering; (3); Framed Structures (5).

Electrical Engineering (2).—Electrical Machines.

Experimental Engineering (3).—Hydraulic and Cement Laboratory.

Drawing (4).—Designs of Structures and Municipal Improvements.

Thesis.

TEXTILE ENGINEERING.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry, and Trigonometry (completed.)

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric Linear; Perspective Sketching.

Mill (4).

Shop-Work (12).

SECOND TERM.

Mathematics (5).—Higher Algebra.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet, and Orthographic Projections.

Mill (4).

Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—General History; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet, and Orthographic Projections.

Mill (4).

Shop-Work (8).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Higher Algebra.

Chemistry (4).—Qualitative Laboratory.

English (4).—English Literature; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

Designing (4).

Mill (8).—Carding and Spinning (4); Weaving (4).

SECOND TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (4).—Qualitative Laboratory.

English (4).—English Literature; Readings; Essays.

Physics (3).—Heat, Sound and Light.

Drawing (4).—Machine Drawing to Scale.

Designing (4).

Mill (8).—Carding and Spinning (4); Weaving (4).

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (4).—Qualitative Laboratory.

English (4).—English Literature; Readings; Essays.

Physics (3).—Electricity and Magnetism.

Drawing (4).—Machine Drawing to Scale.

Designing (8).—Cloth Construction (4); Designing (4); Cloth Calculations (2).

Mill (4).—Weaving.

MIDDLE YEAR.

FIRST TERM.

Chemistry (3).—Organic Chemistry.

English (3).—Political Economy; Readings; Essays.

Mechanism (3).

Drawing (4).—Detail and Assembly Drawing Textile Machines to Scale.

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (8).—Carding and Spinning (4); Weaving (4).

SECOND TERM.

Chemistry (3).—Organic Chemistry.

English (3).—Political Economy; Readings; Essays.

Mechanism (3).

Drawing (4).—Gears, Cams, and Motion Diagrams.

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (8).—Carding and Spinning (4); Hand Loom Weaving (4).

THIRD TERM.

Chemistry (3).—Organic Chemistry.

English (3).—American Literature; Readings; Essays.

Mechanics (5).

Drawing (4).—Detail and Assembly Drawings.

Designing (8).—Fabric Structure and Analysis (4); Designing (4).

Carding (3).—Recitations.

Mill (8).—Carding and Spinning (4); Weaving (4).

SENIOR YEAR.

FIRST TERM.

Chemistry (4).—Quantitative Laboratory.

Designing (4).—Designing.

Mechanics (7).—Strength of Materials, Recitations (4); Laboratory (3).

Dyeing (6).—Lectures (2); Dyeing Laboratory (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (8).—Carding and Spinning (4); Weaving (4).

Shop-Work (4).

SECOND TERM.

Chemistry (4).—Quantitative Laboratory.

Mechanics (6).—Steam-Engine and Boilers, recitations (3); Laboratory (3).

Designing (4).—Designing.

Dyeing (6).—Lectures (2); Dyeing Laboratory (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (8).—Carding and Spinning (4); Weaving (4).

Shop-Work (4).

THIRD TERM.

Chemistry (4).—Quantitative Laboratory.

Mechanics (6).—Power Transmission (3); Power Laboratory (3).

Designing (4).—Designing.

Dyeing (6).—Lectures (2); Dyeing Laboratory (4).

Electricity (2).

Carding (3).—Recitations.

Mill (8).—Carding and Spinning (4); Weaving (4).

Shop-Work (4).

ASSAYING LABORATORY, DEPARTMENT OF CHEMISTRY.

THE
JOHN CRERAR
LIBRARY

ENGINEERING CHEMISTRY.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry; Trigonometry (completed).

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric; Linear; Perspective Sketching.

Shop-Work (12).

SECOND TERM.

Mathematics (5).—Higher Algebra.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—General History; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Higher Algebra.

Chemistry (12).—Qualitative Laboratory.

English (4).—English Literature; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

Shop-Work (4).—Smith shop.

SECOND TERM.

Mathematics (3).—Analytic Geometry.

Chemistry (12).—Qualitative (8); Quantitative (4); General Methods.

English (5).—English Literature; Readings; Essays.

Physics (3).—Heat, Sound and Light.

Drawing (4).—Machine Drawing to Scale.

Shop-Work (4).—Machine-shop.

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemstry (16).—Qualitative (4); Quantitative (12); General Methods.

English (3).—English Literature; Readings; Essays.

Physics (3).—Electricity and Magnetism.

Physics Laboratory (3).—Mechanics and Sound.

Drawing (4).—Drawing to Technological Charts.

Shop-Work (4).—Machine-shop.

MIDDLE YEAR.

FIRST TERM.

Chemistry (12).—Organic Chemistry (3); Organic Laboratory (4); Quantitative (6);

English (3).—Political Economy; Readings; Essays.

Physics (4).—Electricity and Magnetism.

Physics Laboratory (3).—Heat and Light.

Mechanism (3).

Shop-Work (4).

SECOND TERM.

Chemistry (17).—Organic Chemistry (3); Organic Laboratory (2); Quantitative (12).

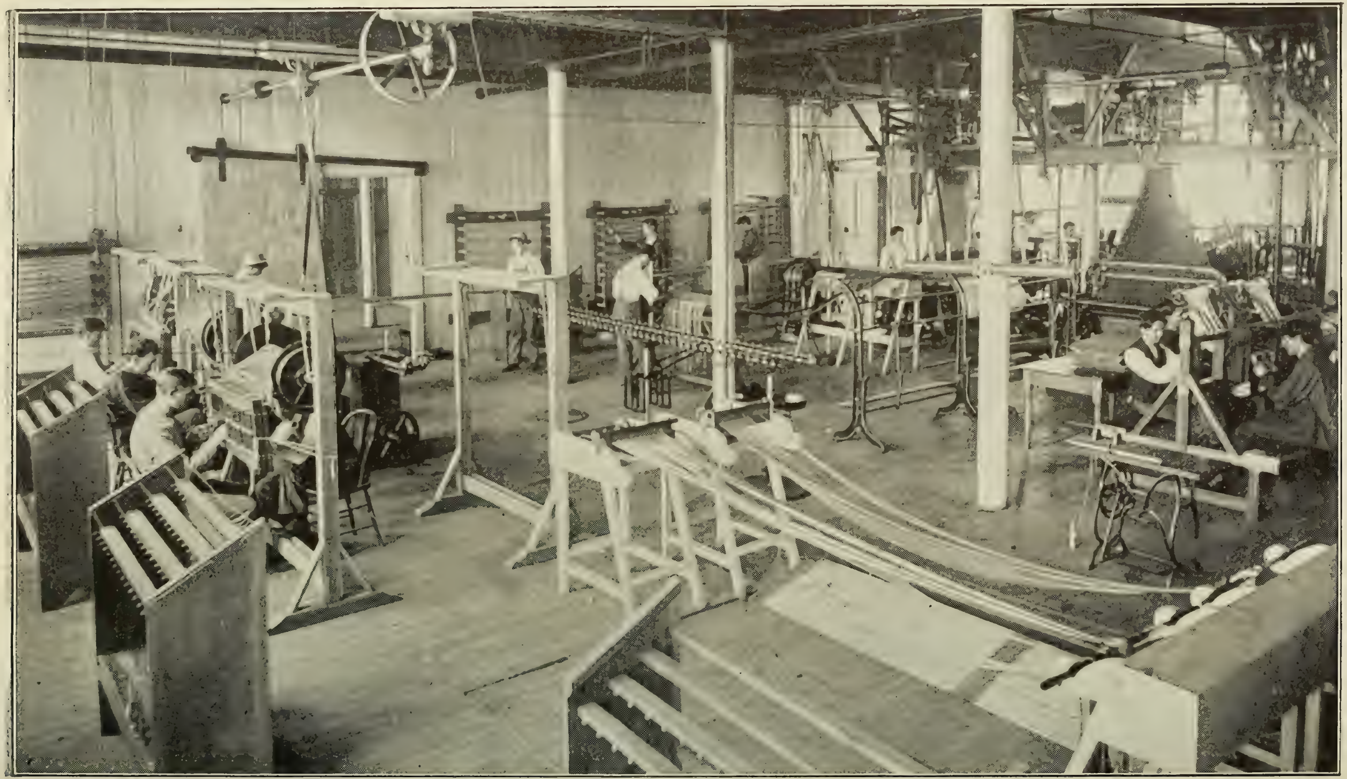
English (3).—Political Economy; Readings; Essays.

Physics Laboratory (3).—Electricity and Magnetism.

Mechanism (3).

Metallurgy (3).

Shop-Work (4).



VIEW IN WEAVE ROOM.

THE
JOHN CRERAR
LIBRARY

THIRD TERM.

Chemistry (21).—Organic Chemistry (3); Organic Laboratory (4); Quantitative (14).

English (3).—American Literature; Readings; Essays.

Matallurgy (3).

Mechanics (5).—Analytic Mechanics.

SENIOR YEAR.

FIRST TERM.

Chemistry (17).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (12).

English (2).—English Literature; Criticisms; Debates; Readings.

Engineering (7).—Strength of Materials (4); Experimental Engineering (3).

Dyeing (6).—Lectures (2); Laboratory (4).

SECOND TERM.

Chemistry (21).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (16).

English (2).—English Literatures; Debates; Readings.

Engineering (6).—Steam-Engine and Boilers (3); Power Laboratory (3).

Dyeing (6).—Lectures (2); Laboratory (4).

THIRD TERM.

Chemistry (5).—Industrial Chemistry (3); Physical Chemistry (2).

English (2).—English Literature; Debates; Readings.

Electricity (2).—Electrical Machinery.

Dyeing (6).—Lectures (2); Laboratory (4).

Thesis.

SPECIAL TEXTILE COURSE.

FIRST YEAR.

FIRST TERM.

Chemistry (5).—Inorganic Chemistry (3); Quantitative Laboratory (2).

Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (8).

SECOND TERM.

Chemistry (5).—Inorganic Chemistry (3); Quantitative Laboratory (2).

Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (8).

THIRD TERM.

Chemistry (5).—Inorganic Chemistry (3); Quantitative Laboratory (2).

Designing (4).

Carding (3).—Recitations.

Cloth Calculations (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (8).

SECOND YEAR.

FIRST TERM.

Dyeing (6).—Lectures (2); Laboratory (4).

Designing (8).—Fabric Analysis (4); Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (4).

SECOND TERM.

Dyeing (6).—Lectures (2); Laboratory (4).
Designing (8).—Fabric Analysis (4); Designing (4).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop (4).

THIRD TERM.

Dyeing (6).—Lectures (2); Laboratory (4).
Designing (8).—Fabric Analysis (4); Designing (4).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop (4).

HISTORY AND GENERAL INFORMATION.

During the session of the Legislature of Georgia in 1882, a committee of ten was appointed to visit technical institutions of the North and report on the advisability of establishing such a school in Georgia.

The committee made its report at the summer session of the Legislature in 1883, recommending the establishment of the school. A bill was introduced for that purpose, and was lost, receiving only sixty-five votes.

The people of the State were appealed to by the supporters of the measure, and it was the issue in many counties in the election of members of the next Legislature. The State Agricultural Society recommended it, and many other prominent organizations of the State pressed the matter upon the attention of the people.

The bill was introduced again by Hon. N. E. Harris, and was passed at the summer session, October 16, 1885, appropriating $65,000 to found the school.

The first Board of Commissioners was appointed by Governor McDaniel, on or about January 1, 1886, as follows: N. E. Harris,

S. M. Inman, E. R. Hodgson, O. S. Porter, and Columbus Heard. The board organized and selected N. E. Harris, chairman, and S. M. Inman, secretary and treasurer.

The act provided for competitive bids for the location of the school from various sections of the State, and the commission, after considering propositions, located the school in Atlanta.

During the summer of 1888, the buildings and part of the equipment being ready, a faculty was elected, and academic and shopwork began October 3 of that year.

By act of the Legislature, December 9, 1890, two other trustees were added to the local board of trustees, and the power to grant diplomas and establish rules and regulations was also conferred on the local board.

In March, 1891, a Sub-Apprentice Class was established for the purpose of preparing those students for the Apprentice Class whose opportunities for advancement in studies had been limited.

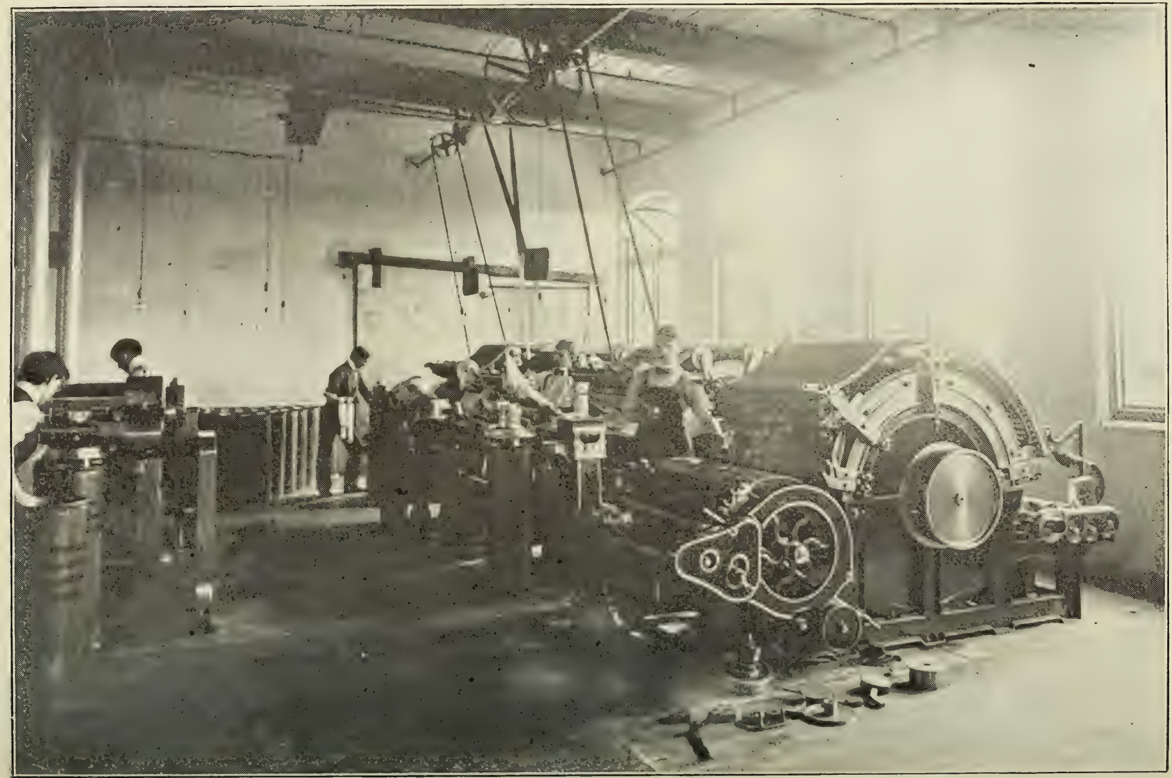
On April 21, 1892, between two and five o'clock a. m., the school shops were totally destroyed by fire. With the insurance on the building and machinery, and additional appropriation made by the Legislature, the building and machinery were at once replaced, and the result of the misfortune was, in the end, most beneficial, as both building and equipment are superior to what were destroyed.

The leading object of the school is to teach the principles of science, especially those which relate to the mechanic and industrial arts.

The school offers an education of high grade, founded on Mathematics, the English Language, the Physicial Sciences, and Drawing, while it gives such familiarity to some industrial pursuits as will enable the graduate to earn a living.

In December, 1896, the Legislature appropriated $20,000 for the equipment of a Department of Electrical Science ($5,000), and for building a dormitory ($15,000). The dormitory was built and first occupied by students at the opening of the fall session of 1897.

The Local Board of Trustees met in December, 1896, and established the degrees of Electrical and Civil Engineering.



PRACTICE ON THE FOUR CARDS.

THE
JOHN CRERAR
LIBRARY

In December, 1897, the Legislature appropriated $10,000 for the establishment of a Textile Department, provided that the friends of the school contribute $10,000 additional in money and machinery.

During the year 1898 nearly $20,000 worth of machinery was donated to the school, and about $13,500 in cash. Experienced mill architects were employed to make plans for the Textile building described on page 92. The regular course in Textiles, both in theory and in practice, began in the fall of 1899.

Mr. Aaron French, of Pittsburg, Pa., became interested in the school in the summer of 1897, and when he was asked to co-operate in meeting the conditions imposed by the Legislature, he made several donations. The first, $2,600, was given without any condition. The second, $3,000, was given provided the friends of the school raise $3,000 additional.

The city of Atlanta promptly met this condition by appropriating the necessary $3,000 in July, 1898.

Mr. French's third donation amounted to $3,000, and enabled the trustees to make material increase in the size of the Textile building.

Other gifts of the school have been as follows:

From Mr. J. W. Rucker for maintenance, in June, 1899	$ 3,000
From Mr. Aaron French for maintenance, in June, 1899	3,000
From Mr. Aaron French for scholarship, in July, 1898	500
From Mr. Aaron French, for scholarship, in December, 1899	500
From Mr. Aaron French for maintenance, in January, 1900	3,500

In 1900 the following:

From James Swann for dormitory	21,500
From other citizens and friends	13,500

In June, 1902, the General Education Board offered to give the school $5,000 for equipment and $2,500 two successive years for maintenance, provided friends of the school would donate $10,000 additional.

Georgia School of Technology.

The following donations, including some previously promised, were secured by commencement day, June 26, 1902:

Almond, J. A.	$ 25.00
Atlanta Supply Co.	50.00
Atlanta Journal	150.00
Alexander, J. M.	25.00
Adair, Forest	50.00
Amorous, M.	100.00
Andrews, W. P.	100.00
Adair, G. W., Jr.	25.00
Atkinson, H. M.	1,000.00
Ashford, W. T.	100.00
Beck, J. F.	50.00
Brown, E. T.	100.00
Bickert, M. L.	50.00
Beck & Gregg Hardware Co.	100.00
Bagley, H. C.	50.00
Brooks, P.	50.00
Brockett, C. T.	10.00
Broyles, A.	25.00
Black, R. C.	25.00
Black, E. P.	50.00
Carter & Gillespie	15.00
Colcord, A. R.	25.00
Crafts, Geo. H.	50.00
Cosgrove, W. L.	25.00
Cotton States Belting & Supply Co.	100.00
Crawford, G. G.	100.00
Chamberlain-Johnson-DuBose Co.	100.00
Calhoun, Dr. A. W.	100.00
Carlton Shoe Co.	25.00
Candler, A. G.	100.00
Davis & Freeman	25.00
Davis-Paxon-Stokes Co.	100.00
DeGive, L.	50.00
Dobbs & Wey Co.	50.00
Elkin-Watson Drug Co.	25.00

Excelsior Laundry Co.	50.00
Emmons Bros.	25.00
Eiseman Bros.	100.00
English, J. W.	250.00
English, J. W., Jr.	100.00
Eagan, J. J.	100.00
Gude, A. V.	50.00
Gholstin, Louis	50.00
Gay, E. S.	100.00
Gatins, J. L.	50.00
Grant, J. W.	250.00
Haas, A.	15.00
Hunnicutt, C. W.	25.00
Hallman, J. C.	100.00
Hinman, Geo. P.	25.00
Hickey, J. E.	50.00
Harris, W. M.	50.00
Harrison, G. W.	100.00
Inman, Hugh	250.00
Inman, W. P.	250.00
Jackson, W. M.	25.00
Jacobs, Joseph	50.00
Kontz, E. C.	25.00
Kamper, C. J.	50.00
Keely Co.	100.00
Kelly, W. M.	100.00
King Hardware Co.	150.00
Kiser, W. H.	100.00
McGowan, James	25.00
Moore, Jno. L. & Sons	25.00
Miller, Jno. A.	25.00
Massee Felton Lumber Co.	100.00
Muse, Geo. Clothing Co.	100.00
Mower, W. K.	10.00
Maier & Berkele	50.00
Murphy & Co.	50.00
Nash, J. V. H.	50.00

Nash, R. S.	50.00
Nelson, Geo.	50.00
Neal Loan & Banking Co.	100.00
O'Neill, B. P.	100.00
O'Neill Mfg. Co., Rome, Ga.	50.00
Orr, J. K.	50.00
Ottley, J. K.	25.00
Oppenheim, I. H.	100.00
Owens, Jno.	100.00
Parrott, Geo	100.00
Paulsen, Jacob	500.00
Patterson, W. H.	100.00
Perkins Lumber Co., Augusta, Ga.	100.00
Perryman & Walters	50.00
Payne, Carroll	100.00
Peters, Wimberly	100.00
Rose, R. M.	50.00
Rhodes, A. G.	100.00
Randall Bros.	50.00
Rich Bros.	50.00
Ragan, Willis	25.00
Seawell, R. W.	25.00
Southern Cotton Oil Co.	100.00
Sherard, J. B.	20.00
Skalowski, A.	10.00
Stearnes, Harry	50.00
Swords, Cramer	5.00
Southern Belting Co.	100.00
Schaul, H. H.	25.00
Schlesinger, Harry	10.00
Silverman, H. B.	50.00
Steiner, A.	100.00
Spencer, S.	1,000.00
Steele, A. B.	1,000.00
Shedden, R. F.	25.00
Swann, Jas.	1,000.00
Turner, J. D.	250.00
Thornton, A. E.	100.00

Thornton, Lee	10.00
Terrell, C. D.	15.00
Terrell, H. D.	10.00
Van Winkle, E.	250.00
Woodward Lumber Co.	500.00
Whitney, E. R.	5.00
Wiggs, Mrs. H. L.	50.00
Willingham, E. G.	25.00
Winship, Geo.	150.00
Wynn, J. O.	25.00
Total	$12,910.00

THE A. FRENCH TEXTILE SCHOOL.

The establishment of this department is an entirely new feature in education in the State of Georgia, and the superior equipment for instruction in the manufacture of all grades of cotton goods is expected to promote interest in manufacturing.

It will be noticed in the Textile course of study that manual training, chemistry, dyeing and engineering are included.

APPROPRIATIONS.

The school receives $45,000 per annum from the State, and $2,500 per annum from the city of Atlanta. During the session of the Legislature in 1902, the maintenance fund was increased from $40,000 to $45,000 per annum.

In December, 1900, the Legislature appropriated $10,000 for an electrical building, and $6,000 for additional textile equipment, with the proviso that these amounts would not be available until the friends of the school should furnish $25,000 in cash donations. The condition was met as stated above.

BUILDINGS.

The school occupies a beautiful site in a campus of nine acres, lying at the junction of North avenue and Cherry streets, easily accessible by street-car lines on Marietta, West Peachtree and Luckie streets. The Academic building is a splendid edifice of brick, trimmed with granite and terra-cotta, slate roof. It has one hundred and thirty feet front, is one hundred and twenty deep, and is four stories above basement story. It contains ample accommodations in halls, offices, apparatus-rooms, recitation and lecture-rooms, library and chapel.

The workshops are also of brick, the main shop building being two hundred and fifty feet long by eighty wide, and two stories, with large basements. It is admirably designed with reference to its use, and affords ample space for the machine and wood-shops and the foundry. In the basement are complete equipment for hot and cold baths, and lockers for students' clothes. The smith-shop, boilers, and cupolas for foundry are located outside the main shop building, thus reducing to a minimum all chances of another disaster by fire.

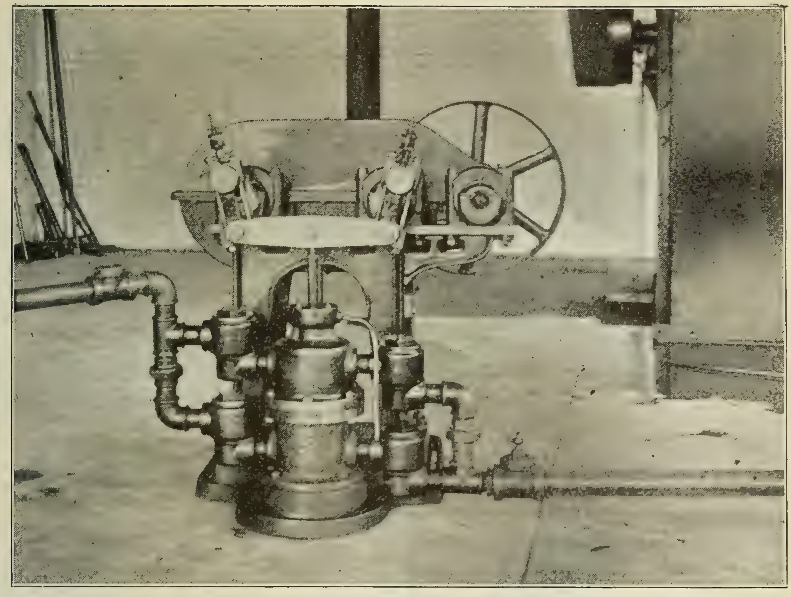
During 1898 a new smith-shop was built. It contains 21 forges, a vise-room, and office, and is well lighted by large windows which extend entirely around the building.

The new Textile building was completed in 1898, and is 150 by 70 feet with three floors for the accommodation of machinery, class-rooms, etc. It was designed by Lockwood, Greene & Co., of Boston, and fulfills every requirement of a modern cotton mill.

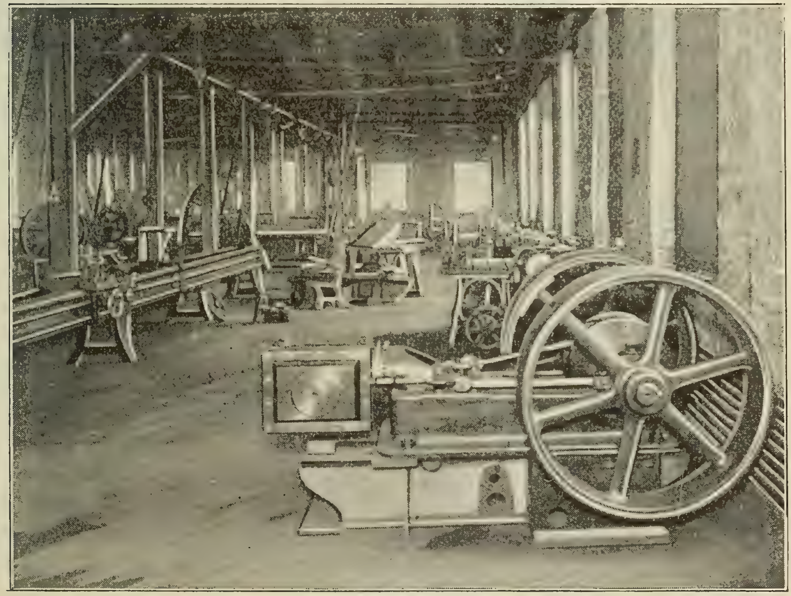
The Dormitory buildings consist of the Janie Austell Swann Dormitories, containing fifty rooms for students, the Knowles Dormitory containing thirty-six rooms for students, gymnasium, shower-baths, and dining-room; two smaller dormitories of eight rooms each; and a small building of four rooms.

THE NEW BUILDINGS.

The Janie Austell Swann Dormitories, costing $30,000, for the accommodation of 100 students, has been completed. It is a handsome structure of three stories, 142 by 54 feet, and finished



POWER FEED PUMP. CONSTRUCTED BY STUDENTS.



50-H. P. ENGINE, NOW IN USE, BUILT BY STUDENTS.

in pressed brick and stone, with monumental pillars at the front entrance. It is heated by the blower system, lighted with electricity, and contains ample halls, reception rooms, etc. The building is a memorial erected by Mr. James Swann to his wife.

The new Electrical building, costing $15,000 has been completed. It is three stories in height, 90x82 feet in plan, and contains the Mechanical and Experimental Laboratory, the Electrical Laboratory, Drawing-rooms, Blue-print room and classrooms.

A small framed structure has been built on the school property, isolated from other buildings, for the detention and treatment of students who may have contagious diseases.

EQUIPMENT.

The Mechanical, Electrical, Chemical, and Physical laboratories have been fitted up with reference to practical work, and such additions will be made from time to time as may be required for experimental research. The apparatus and appliances are of the newest and best forms, and will be increased as occasion may demand.

The workshops have been equipped with machinery and tools from the best makers, and of the latest pattern, at a cost of over twenty-five thousand dollars. In pursuance of the fundamental idea of giving the students access to the best machinery and experimental knowledge of the best methods of mechanical work, the Trustees have put the Mechanical Department on a footing with the most improved and complete shops in the country, and hardly any process requiring fine material and accurate workmanship is beyond its capacity.

The shops of the institution have already won an enviable reputation for the quality of their iron and brass castings, perfection in gear-cutting, and the beauty and variety of their wood and other work.

The Textile Building has an unsurpassed equipment of cotton manufacturing machinery, listed elsewhere.

DEGREES CONFERRED.

The degrees conferred are as follows: Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Textile Engineering, and Bachelor of Science in Engineering Chemistry.

SESSIONS AND TERMS.

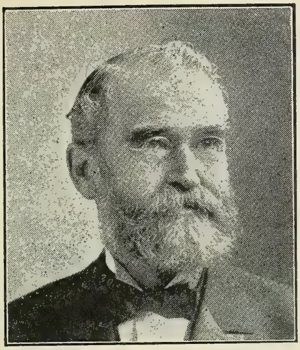
The session begins the last Wednesday in September, and ends the Thursday before the fourth Wednesday in June. It will be divided into three terms of twelve weeks each. There will be an intermission of one week, embracing Christmas.

All students are required, and all applicants are requested to be present at the opening hour of each session, as punctuality operates to their advantage in many ways.

SUB-APPRENTICE CLASS.

Applicants for this class must be at least sixteen years old and pass a satisfactory examination in arithmetic, including common and decimal fractions, compound numbers, percentage, ratio, proportion, alligation, square root, cube root and mensuration.

Students in this class will have access to the shops and will be under the same general government as the other classes as to sessions, fees, rules, etc.



MR. AARON FRENCH.

THE A. FRENCH SCHOLARSHIPS.

Mr. Aaron French, of Pittsburg, Pa., gave three scholarships to the Georgia School of Technology, which are self-perpetuating in that the beneficiary refunds the money after graduation, in small monthly notes without interest.

The conditions under which the scholarships are awarded are as follows:

1. The applicant must be at least sixteen years of age.
2. No one is eligible whose family pays taxes on more than $3,000 worth of property. (Affidavits from city and county tax-collectors to this effect are required.)
3. The scholarships are to be awarded by competitive examinations in the subjects for entrance to the Apprentice Class. (See page 97.)

SCHOLARSHIP NUMBER 1.

The competitive examination for scholarship number one was held at the School in the fall of 1898, and was won by Mr. W. E. Klein, of Atlanta. He graduated 1902, and in the fall of that year, September 24, the scholarship was won by Mr. W. C. Appleby, of Winder, Ga.

SCHOLARSHIP NUMBER 2.

The competitive examination for scholarship number two was held at the School, Wednesday, September 26, 1900, under the conditions named above, and was won by Mr. G. A. Harbour, of Atlanta. He will graduate in 1904, when another competition will take place.

SCHOLARSHIP NUMBER THREE.

The competitive examination for scholarship number three was held at the School, September 24, 1902, and was won by Mr. Arnold Wells of Belton, Texas.

The Scholarships are Limited to no State or Section of the Country.

The winners of these scholarships will be furnished funds at such times as the President may think necessary for expenses, books, fees, etc., but not over $125.00 will be furnished each year.

No formal application for entrance into the competitive examination is necessary. The presence of the applicant at the school at 9 a. m., on the opening day of the fall term, will entitle him to admission to the examinations

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APPRENTICE CLASS.

Candidates for admission to the Apprentice Class must be at least sixteen years old, must be of good moral character, and must pass examination in the following studies, viz:

Algebra, Elements Complete.—Addition, subtraction, multiplication, division, factoring, greatest common divisor, least common multiple, simple equations, fractions, simultaneous equations of the first degree, involution, evolution, fractional and negative exponents, quadratics and radicals, simultaneous equations of the second degree, logarithms, permutations and combinations, binomial theorem, etc.

Geometry.—Plane and solid to the sphere.

English.—English Grammar and familiarity with Southern Poets, Silas Marner, Lady of the Lake, Rip Van Winkle and the Legend of Sleepy Hollow.

Candidates for admission to advanced classes must be sixteen years of age, and must show that they are qualified to enter the class for which they apply by examination.

EXAMINATIONS.

Two entrance examinations will be held; one at the time of the final examinations for the school session, about June 10, and the other at the opening of the fall term, about September 30. Applicants for admission to Apprentice and higher classes will be admitted to either or both of these examinations.

Final examinations are held at the end of each term. Students are liable to be dropped from the roll of their class at any examination when they do not meet the requirements, and at any time when they neglect their studies and fall hopelessly behind their classes. No fees or tuition are refunded under such circumstances. All examinations are written.

GOOD RECORD CERTIFICATE.

All new students must present a certificate from the last school they attended, stating they left in good standing with the authorities.

REPORTS.

Reports of the standing of students are issued at the close of each term.

Bulletin-boards are placed in the halls, and upon these are posted each month the grading of students as ascertained by the monthly examinations.

Whenever a student is deficient in any study or department at the close of any month a report of such fact is sent to his parents.

LIBRARY AND READING ROOM.

The school is now supplied with a well-organized and well-selected library of nearly 2,000 volumes. This acquisition is due largely to the generosity of local friends who have responded to appeals for aid. In addition to the donations in cash and in books already received, the further contributions constantly being made promise well for the future growth of the library. Valuable literary and scientific reference-books have been acquired, and departments established in fiction, history, biography, travel, philosophy and natural science.

The library is in charge of a competent and thoroughly-trained librarian. All books and pamphlets as soon as received are classified and catalogued in accordance with the most approved card system.

Library hours daily are from 8:30 a. m. to 5:00 p. m., excepting Saturdays, when the closing hour is 2:00 p. m.

There has been established in connection with the library a handsomely-furnished and well-equipped reading-room, supplied with some forty of the leading papers and periodicals of this country and England. Additions to the reading-matter will be made from time to time.

TUITION AND FEES.

Each county in the State is entitled to six free scholarships.

These scholarships will be awarded on the ground of excellence in character and preparation, and time of entrance.

The amount of tuition charged to the excess of six from a county of this State is $25.00 per annual session.

Residents of other States pay a tuition fee of $100.00 per year in addition to the fees of $20.00 and $5.00 mentioned below.

Every student, of whatever place of residence, pays an annual fee of $20.00 to cover contingent expenses. Half of this amount is payable on entrance and the remainder on or before the first Saturday after February 10.

A contingent fee of $5.00 will be required to be deposited with the treasurer on entrance, to cover injury done to college buildings or furniture, which sum will be returned to the student on leaving, if not forfeited.

All students will be required to deposit at the beginning of the fall term—

$10.00 of the annual fee;
$5.00 damage fee, unless already deposited;
$12.50 of the tuition fee, if subject to tuition.

And on or before the first Saturday after February 10—

$10.00 of the annual fee;
$12.50 of the tuition fee, if subject to tuition.

Residents of other States are subject to the above requirements, substituting $50.00 for the amount of the tuition fee per half year.

Until the above requirements are complied with no student will be allowed to participate in the duties and recitations of his class.

The student is advised to defer the purchase of drawing instruments and materials until he can have the direction of the professors in their selection.

Text-books and stationery can be purchased from the Quartermaster on good terms. The student is advised, however, to bring such scientific books as he may possess.

No fees are refunded unless a student leaves in good standing, through no fault of his own, and on the advice of the faculty.

No fees are refunded to students who are required to leave for deficiency in shop or mill work or studies.

DORMITORIES.

All students in the Apprentice and Sub-Apprentice classes who do not reside with their parents or guardians are required to board in the school dormitories.

This regulation was passed by the Board of Trustees of the school April 2, 1902, after a careful examination of the advantages and protection afforded by the dormitories to students of the two younger classes. Students of the higher classes will be accommodated in the dormitories also, but their residence there is not compulsory.

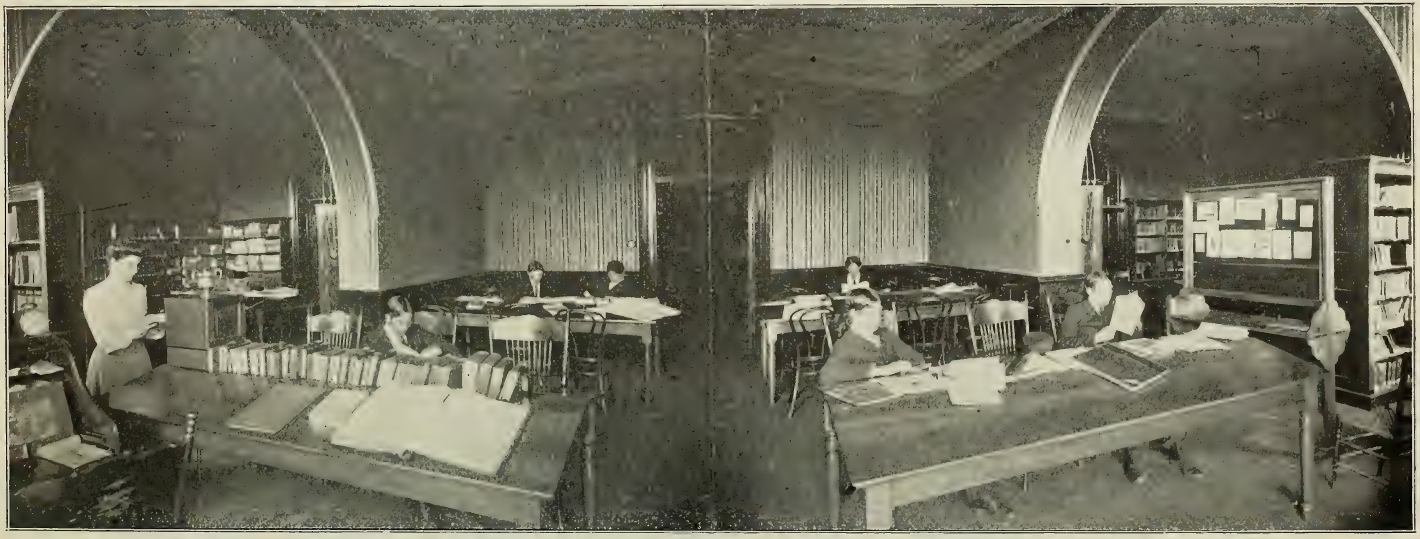
BOARD AND EXPENSES.

The school is provided with dormitory accommodations for two hundred students. The rooms are well lighted and ventilated. Hot and cold shower-baths are accessible to all students, in a new and well-heated bathroom.

The price of board, including laundry, fuel and lights, is $13.50 per month, payable in advance.

Board is not refunded to students unless they leave through providential causes.

All students who desire places in the dormitories must write and secure them before reporting for duty, as the dormitories do not accommodate more than one-half of the students who are in the institution.



THE LIBRARY.

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Students who board in the dormitories are required to furnish the following articles: One pillow, three pillow-cases, four sheets, blankets or comforts, six towels, and any other small and portable articles needed about their rooms. The articles named should be brought from home. The school furnishes with each room: Beds (single three-quarter width), mattresses, springs, wardrobe or closet, washstand, bureau and table. It is intended that only two students shall occupy one room.

With the information given above, students may easily come to Atlanta without preliminary correspondence and be located, at least temporarily, a few hours after their arrival.

Every member of the Apprentice class must provide himself with gymnasium suit and shoes, the total cost of which is about $2.00.

Each student should have two suits of overalls, costing about $1.00 each.

For prices of drawing materials and drawing instruments, (Apprentice Class), see page 30.

The cost of books, etc., in the Apprentice year is large on account of the purchase of drawing instruments.

DISCIPLINE AND DORMITORY REGULATIONS.

The students of the school have a record for good conduct unsurpassed by any corps in the country.

They are required to obey but few regulations, the authorities bearing in mind the development and best interest of the student body.

Every man is expected to conduct himself as a gentleman. When he fails in this, and convinces the authorities that he has not come to work, his parents are requested to withdraw him.

No student will be permitted to room in the dormitories who has not signed a pledge to refrain from disorder and obey regulations.

Special Textile students and students having but few lessons to prepare will not be admitted to the dormitories.

LEAVES AND PERMITS.

(1) Students must not leave the school property without permission, except during hours designated by special regulations.

(2) Requests for permission to be off limits must be submitted in writing to the Professor in charge before 8:00 a. m., except on Sundays, then before 9:00 a. m., who will pass upon them and return through the mail.

(3) Students will state in their requests for leave of absence the hours desired for departure and return, and where they wish to go, giving name and street number.

(4) Students having leaves of absence must report their departure and return to the Professor in charge, who will record times of same on student's written permit.

(5) No one has authority to grant leaves of absence except the President, Professor in charge, or some one delegated with authority to act in their absence. But any professor or officer of the institution may record time of departure and return.

(6) Leaving before the hour for departure, or returning after the leave expires, will be punished by confinement, expulsion from the dormitory, or dismissal from the school.

(7) No leaves will be granted for theaters, or during the week for religious exercises, without written requests from students' parents.

(8) Getting a leave of absence for one place and then going to another, will be regarded as a false statement, and is punishable by expulsion from the school.

(9) Students will be granted leave of absence on Saturdays from conclusion of inspection to call to quarters, and on Sundays from breakfast to call to quarters.

(10) Students will be allowed to exercise on their wheels during vacant periods without permits. Limits being on North avenue from Plum to Peachtree, and on Peachtree from Ellis street, north.

(11) Students who dismount from their wheels, for calling, walking, or other purposes, except in cases of emergency, while

RECITATION IN CARDING.

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taking advantage of the above regulation, will be dismissed from the school.

(12) Students attending fraternity meetings must delegate some man from each fraternity, who will be held responsible for the men going, attending and coming from the place of meeting, and who shall report departure, hour of adjournment, and return to the Professor in charge.

(13) Any student absenting himself from the Dormitory without complying with the above regulations will be suspended from the institution.

INSPECTION AND BELLS.

(1) The time at the Dormitory will be regulated by the clock in the Academic building.

(2) The rising bell will ring in the hall at 6:15 a. m., daily, except on Sunday.

(3) Rooms must be in order, beds made up, floors swept, and students dressed at 6:40 a. m., when the inspection bell rings.

(4) The bell for breakfast will ring at 6:45 a. m., except on Sunday, when the rising, inspection and breakfast bells will ring one hour later.

(5) At 7 p. m. the bell for call to quarters will ring. Then all students must go to their rooms for study.

(6) Five minutes after call to quarters there will be an inspection, after which no student will be allowed to visit without special permission from Professor in charge. Visiting will be allowed on Friday and Saturday nights, after the usual inspection.

(7) Orderlies will be held responsible for any undue noise or disorder in rooms during study hours.

(8) At 10:15 p. m. the bell for retiring will ring, and all lights must be out and students in bed at the second bell, which will ring at 10:30.

(9) The general weekly inspection will be held every Saturday at 9 a. m., at which all students not on duty are required to be present.

MISCELLANEOUS.

(1) Students found with playing cards in their possession or in their rooms will be suspended from the school.

(2) Any student found with intoxicating liquors in his possession will be suspended from the school. In case such liquors are found in any room in the Dormitory, the Orderly of the room will be held responsible.

(3) Students found with fire-arms in their possession will be suspended from the school.

(4) Fire-arms should be deposited with the Professor in charge.

(5) Students will not be allowed to use bath-room after call to quarters, except on Fridays and Saturdays.

(6) Rooms must be kept in order by students, room-mates taking alternate weeks in performance of this duty. The student whose week it is to keep the room in order shall be known as Orderly and shall have his name posted on the door as such.

(7) No student will be excused from his duties on account of sickness unless his name is reported on the sick list by the division inspector to the Professor in charge, who will summon a physician. A fee of $1 is charged for each visit of the physician. In case a student is taken sick during the day he shall report immediately to the President, or in his absence to the Professor in charge.

(8) Students must patronize the laundry.

(9) Any disorder in the mess-halls will be punished by expulsion from the Dormitory.

ABSENCES.

(A). Absences of all students will be mailed to parents weekly.

(B.) Students attending athletic duties, or others, for which they were specially detailed by the Faculty, will not be held accountable for absences resulting therefrom.

(C). Absences resulting from sickness, attenting conventions, being called home by parents, or any cause other than that which is specially provided for by the Faculty, will not be excused.

(D). Students' absences from any subject will deduct from their term standing in such subject as follows for each absence:

(1) For recitations held five hours per week, one and a half.

(2) For recitations held four hours per week, two.

(3) For recitations held three hours per week, two and a half.

(4) For recitations held two hours per week, four.

(5) For absence from shop, two and a half, time to be made up.

(6) For absence from mill, two and a half, time to be made up.

(7) For absence from drawing, two and a half, time to be made up.

(8) For absence from designing, three.

(9) For absence from laboratory, three.

(10) For absence from gymnasium, two and a half, time to be made up in shop or mill the following week.

(11) For absence from chapel, three from general term standing.

(12) Each tardy in any subject will deduct one from the term standing in that subject.

(E). In case a student is tardy by having been detained by a professor, a certificate to such effect from the professor who detains the student will excuse the student when presented to the professor who charges the tardy.

(F). Students charged now with one or two unexcused absences are regarded as having one or two offences.

(G). The offence of being sent from the room, or any other misconduct, will be designated as "First Offence." On "Second Offence" of like nature, parents will be notified that the "Third Offence" will result in being dropped from the rolls for the year. The third offence will receive the penalty as stated.

(H). Any flagrant misconduct will be dealt with by the Faculty as usual.

SPECIMEN EXAMIMATIONS FOR ENTRANCE.

Sub-Apprentice Class and Special Textile Course, Pages 61 and 94.

FALL ENTRANCE—Arithmetic.

1. How many acres in 1 mile of road 3 rods wide ?
2. Change $\frac{5}{11\frac{1}{2}}$ to a fraction whose denominator is 46.
3. A. is 1760 yards behind B. and they are going in the same direction. If A.'s rate is to B.'s as $1\frac{6}{7} : \frac{9}{21}$, how far must each travel before A. overtakes B.?
4. From 5.062 take $2.1\frac{1}{4}$ and express the result in a common fraction in hundredths.
5. A cubical cistern holds 1331 cubic yards; how deep is it?
6. Two cogged wheels, of which one has 16 and the other 17 cogs, work in each other. If the latter turns 80 times in $\frac{3}{4}$ of a minute, how often does the former turn in 8 seconds ?

APPRENTICE CLASS.

FALL ENTRANCE—Algebra.

1. Add $\frac{1}{a-2x}$, $\frac{1}{a+2x}$, $\frac{2a}{a^2-4x^2}$, $\frac{a^4+16x^4}{4a^3}$.
2. The arithmetic mean of two numbers exceeds the geometric by 13, and the geometric exceeds the harmonic by 12. Find the numbers.
3. Simplify $\frac{a^{\frac{1}{2}}b^{\frac{1}{2}}}{c^{\frac{1}{6}}} \div \left\{\frac{c^{\frac{1}{2}}}{a^{\frac{1}{3}}b^{\frac{1}{3}}} \times \frac{a^{-\frac{5}{6}}c^{-\frac{2}{3}}}{b^{\frac{5}{6}}}\right\}$
4. Solve $x - \frac{1}{y} = y - \frac{1}{x} = \frac{3}{2}$

THE MACHINE SHOP.

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5. Give the total number of combinations of n things taken r at a time, and demonstrate the principle.

6. Expand $(1-4x)^{-\frac{3}{2}}$ to 4 terms and show that the rth term may be written $\dfrac{\underline{|2r+1}}{(\underline{|r})^2}$

APPRENTICE CLASS.

FALL ENTRANCE—Geometry.

1. Demonstrate: Any two similar polygons are to each other as the squares of their homologous sides.

2. Find the value of each interior angle and the angle intercepted by two adjacent sides in a regular decagon.

3. Construct an isosceles triangle on the same base as a given triangle and equivalent to it.

4. There is a cylinder 6 inches in diameter having an altitude of one foot. The cylinder is partially filled with water, and a ball containing 30 cubic inches is dropped in, causing the water to rise to the top. What was the height of water in the cylinder at first?

5. Demonstrate: The sum of the face angles of any convex polyhedral angle is less than four right angles.

6. A cube is surmounted by a right cone whose base is inscribed in the upper base of the cube. The altitude of each solid is 12 inches. Find the volume of both and the amount of exposed surface.

APPRENTICE CLASS.

FALL ENTRANCE.

(English Grammar.)

I. Name and define the parts of speech. What parts of speech are inflected, and what name is given to the inflexion in each instance?

II. Into what classes are nouns divided? Mention four ways of forming the plural of nouns. Three ways of distinguishing their gender by their form. Inflect *duke, Norman, son-in-law, woman-servant.*

III. Name with examples five classes of pronouns. Inflect the Personal Pronouns and *who.* How do the Relatives differ in use?

IV. Give five noun constructions requiring the Nominative case; five requiring the Objective Case. Parse the nouns and pronouns in: But me no buts. He waited a year; then declared himself the murderer. The day being foggy, the hill seen through the mist seemed a mountain.

V. Parse the adjectives in:

> "And his droop'd head sinks gradually low,
> And through his side the last drops, ebbing slow
> From the red gash, fall heavy, one by one,
> Like the first of a thunder shower."

VI. What do adverbs modify? Write an illustration of each use. Inflect *well, ill, much, heavily.* Name with examples the two general classes of conjunctions.

VII. Define the terms: Transitive Verb, Intransitive Verb, Auxiliary Verb, Impersonal Verb, Passive Voice. Write the Indicative Mode of *shake;* the Subjunctive of *be.*

VIII. What are participles and infinitives? Parse the participles and infinitives in: Desiring to succeed makes it possible for us to succeed, though the noblest desire to work can often do nothing but wait; still, fearing nothing let us face the future, remembering that to dare will be to do,—God willing.

IX. What is a phrase, a clause, a sentence? As what parts of speech may a phrase be used? Use *where the battle was fought* as a noun, as an adjective, as an adverb.

X. How are sentences classified according to form, or structure; according to use? Define each class. Analyze:

> "Sweet are the uses of adversity,
> Which like the toad, ugly and venomous,
> Wears yet a precious jewel in his head."

APPRENTICE CLASS.

FALL ENTRANCE.

(English and American Classics.)

I. Give a biographical sketch of Edgar Allen Poe; of Sidney Lanier.

II. Tell the story of "The Raven" and interpret its significance.

III. Tell in your own words the story of "The Lady of the Lake."

IV. Mention the leading characters of "Silas Marner," and give a critical estimate of each character.

V. Tell in outline the story of "Rip Van Winkle"; how does it exemplify Irving's genius?

VI. Give a synopsis of the "Legend of Sleepy Hollow."

REGISTER OF GRADUATES.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
George G. Crawford Wilkinson.	'90	M.E.	Manager, National Department National Tube Company, comprising National Tube Works, National Rolling Mills, Monongahela Furnaces, Monongahela Steel Works, Boston Iron and Steel Works, Republic Iron Works, National Galvanizing Works, McKeesport, Pa., U. S. Steel Corporation.
Henry L. Smith.... Rockdale.	'90	M.E.	Member of H. L. & M. D. Smith, Manufacturers, Dalton, Ga.
Percy C. Brooks ... DeKalb.	'91	M.E.	Secretary and Treasurer Fairbanks-Morse Manufacturing Co., Secretary Eclipse Wind Mill Co., Secretary Eclipse Engine Co., Secretary Eclipse Machine Moulding Co., Secretary Williams Engine & Clutch Works, Beloit, Wis.
Julius L. DeGive... Fulton.	'91	M.E.	Electrician and Constructing Engineer of Grand Opera House, Atlanta, Ga.
W. H. Glenn....... Fulton.	'91	M.E.	Superintendent Maintenance of Way, Georgia Railway & Electric Co., Atlanta, Ga.
J. D. Goldsmith ... Fulton.	'91	M.E.	With Southern R'y Shops, Atlanta, Ga.
J. H. Jones........ Fulton.	'91	M.E.	Assistant Engineer, New Soddy Coal Co., Soddy, Tenn.
J. A. McCrary ..... Coweta.	'91	M.E.	Moore & McCrary, Mechanical Engineers, English-Am. Bldg, Atlanta, Ga.
J. S. Moore .... Thomas.	'91	M.E.	Mechanical Engineer, Moore & McCrary, Eng.-Am. Bldg., Atlanta, Ga.
C. M. Pritchett.... Bartow.	'91	M.E.	Engineer U. S. Geological Survey, Hydrographic Div'n, Washington, D. C.
C. E. Ard.......... Stewart.	'92	M.E.	Acting Professor of Physics and Electrical Engineering, Agricultural College, Miss.
J. W. Bridge ...... Fulton.	'92	M.E.	Division Superintendent Pittsburgh, McKeesport & Connellsville R'y Co., Uniontown, Pa.
A. R. Colcord...... Dodge.	'92	M.E.	President Concord-Williams Lumber Co., Atlanta, Ga.

IN THE DYEING LABORATORY.

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REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
E. W. Collins ..... Cobb.	'92	M.E.	Superintendent Electrical Department, Dawson, Ga.
E. H. Davis........ Putnam.	'92	M.E.	Superintendent Electric Light & Water Plant, Griffin, Ga.
C. E. Fairbanks.... DeKalb.	'92	M.E.	Chief of Electrical Equipment and Switch-board Dep't New York & New Jersey Telephone Co., Newark, N. J.
George Freeman... Chatham.	'92	M.E.	Deceased.
Wm. A. Hansell, Jr. Fulton.	'92	M.E.	Constructing Engineer for American Chemical Works, Cartersville, Ga.
N. B. Hudson...... Rockdale.	'92	M.E.	With R. D. Cole Mfg. Co., Newnan, Ga.
Mark W. Johnson, Jr Fulton.	'92	M.E.	Chief Draughtsman, Furnace Division, Tenn. Coal, Iron & Railway Co., Ensley, Ala.
C. B. Little........ Putnam.	'92	M.E.	Asst. Supt. and Mechanical Engineer Brownell Co., Engine and Boiler Manufacturers, Dayton, Ohio.
M. M. Pearson..... Tattnall.	'92	M.E.	Draughtsman, General Electric Co, Schenectady, N. Y.
J. G. Rossman..... Greene.	'92	M.E.	President B-R Electric Co., Atlanta, Ga.
T. F. Scully........ Fulton.	'92	M.E.	Deceased.
J. B. Sherard ...... Jackson.	'92	M.E.	With Newport News Ship-Building and Dry Dock Co., Newport News, Va.
W. P. Walthal..... Campbell.	'92	M.E.	With G. W. Adair Real Estate Co., Atlanta, Ga.
Z. Whitehurst..... Wilkinson.	'92	M.E.	Principal Dublin Institute, Dublin, Ga.
F. E. Whitney..... Richmond.	'92	M.E.	Member of S. M. Whitney Co., Cotton Factors, Augusta, Ga.
A. D. Black........ Floyd.	'93	M.E.	Asst. Engineer, Dist. Engineer Corps, Dist. of Columbia, Washington, D. C.
E. E. Davis........ Chatham.	'93	M.E.	Mechanical and Electrical Engineer and Senior Member Davis-Forest Machine Works, Savannah, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
S. F. Jeter......... Fulton.	'93	M.E.	Mech. Engineer Mining Co., Cartersville, Ga.
Joe W. Little...... Fulton.	'93	M.E.	President of Carter & Gillespie Electric Co., Atlanta, Ga.
H. L. Long, Jr..... Lee.	'93	M.E.	Doctor of Medicine, Leesburg, Ga.
M. W. McRae...... Bibb.	'93	M.E.	Architect and Mill Engineer, 315 Equitable Building, Atlanta, Ga.
H. H. Miles........ Fulton.	'93	M.E.	Contractor, 815 Austell Building, Atlanta, Ga.
A. R. Murrey...... Cobb.	'93	M.E.	Draughtsman for Lodge & Shipley Machine Tool Co., Cincinnati, O.
W. J. Nalley....... Douglas.	'93	M.E.	Mechanical and Civil Engineer, Austell Building, Atlanta, Ga.
H. G. Nowell ...... Walton.	'93	M.E.	Attorney at Law, Monroe, Ga.
H. T. Phillips...... Fulton.	'93	M.E.	Treasurer of Phillips & Crew Co., Atlanta, Ga.
W. O. Connor...... Floyd.	'94	M.E.	Professor of Mathematics in Iowa School for Deaf, Council Bluffs, Iowa.
D. E. Duggan...... Hancock.	'94	M.E.	Manager and Superintendent of the Cochran Cotton Mill, Cochran, Ga.
G. F. Forest......... Thomas.	'94	M.E.	Mechanical Engineer & Member of Davis Forest Machine Works, Savannah, Ga.
E. A. Greene....... Clay.	'94	M.E.	Lieutenant U. S. Marine Corps, Navy Yard, Washington, D. C.
T. Holmes......... McIntosh.	'94	M.E.	Manager, Moses & Holmes, lumbermen, Booth, Ala.
W. W. Hunter..... Wilkes.	'94	M.E.	Assistant Engineer to C. P. Barnett, Clifton Forge, Va.
E. B. Merry........ Columbia.	'94	M.E.	Senior member of Merry Bros. Brick Co., Augusta office, Augusta, Ga.
P. Ogletree........ Meriwether.	'94	M.E.	Peach Growing, Zenith, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
E. R. Whitney..... Richmond.	'94	M.E.	Mechanical Engineer with the General Electrical Co., Lynn, Mass.
S. W. Allen......... Elbert.	'95	M.E.	Superintendent Elberton Light and Power Plan, Elberton, Ga.
J. A. Almond Elbert.	'95	M.E.	Superintendent The Pearl Cotton Mills, Beverly, Ga.
H. W. Clark ...... Richmond.	'95	M.E.	Manager Alabama Cotton Mills, Speigners, Ala.
J. M. Goldsmith, Jr. Fulton.	'95	M.E.	Assistant Engineer Georgia Electric Light and Power Co., Atlanta, Ga.
G. H. Harrison, D.D. DeKalb.	'95	M.E.	Rector St. George's Church, Griffin, Ga.
Wm. Jessup........ Fulton.	'95	M.E.	Draughtsman Geo. B. Sickels Co., Marble Works, Tate, Ga.
J. F. Lovette....... Fulton.	'95	M.E.	With Southern Express Co., Atlanta, Ga.
C. W. McCall...... Chatham.	'95	M.E.	Cashier for Hunter, Pearce & Battey, Cotton & Naval Stores, Savannah, Ga.
W. B. Nunnally.... Fulton.	'95	M.E.	Vice-President and General Manager Atlanta Knitting Mills, Atlanta, Ga.
T. F. Oetjen........ Richmond.	'95	M.E.	Agent Aetna Life Insurance Co., Hartford Conn., Augusta, Ga.
J. E. Smith........ Fulton.	'95	M.E.	Superintendent John M. Smith Carriage Factory, Atlanta, Ga.
R. N. Towers ...... Floyd.	'95	M.E.	Assistant Mechanical Engineer American Cotton Oil Co., N. Y.
G. Z. Echols........ DeKalb.	'96	M.E.	Paymaster U. S. Army, Havana, Cuba.
J. F. Gibbons ...... Bartow.	'96	M.E.	Ass't Supt. Pittsburgh Reduction Co.'s Aluminum Works, East St. Louis, Ill.
H. R. Hart......... Fulton.	'96	M.E.	Deceased.
Chas. W. Hill ...... Floyd.	'96	M.E.	Consult'g Eng'r and Sup't of Erect'n, Central Coal & Iron Co., Tuscaloosa, Ala.

REGISTER OF GRADUATES—Continued.

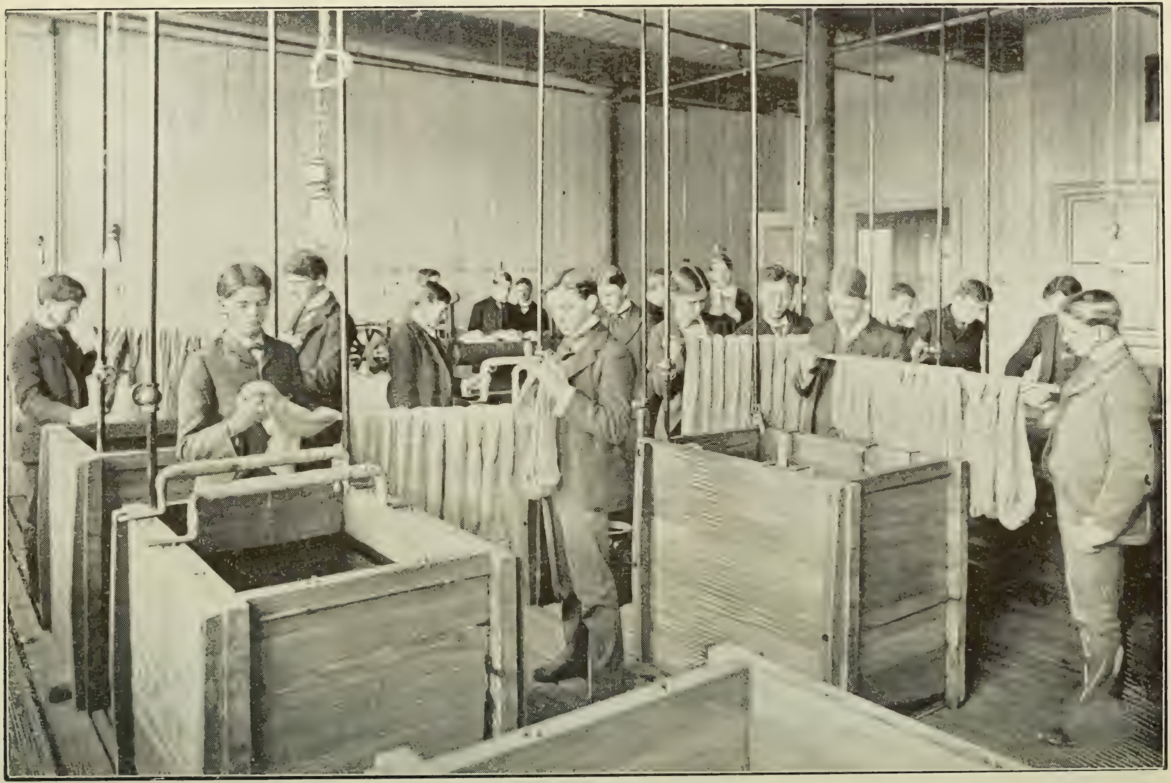
Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
H. C. Reynolds.... Hancock.	'96	M.E.	Electrical Engineer with Carter & Gillespie, Atlanta, Ga.
T. P. Thompson.... Fulton.	'96	M.E.	Electrical Engineer and Electrical Supply Co., Norfolk, Va.
R. B. Tufts........ Glynn.	'96	M.E.	Representing The Clark Pulverizer, 909 Prudential Building, Atlanta Office.
A. B. Whitney..... Richmond.	'96	M.E.	Deceased.
J. T. Wikle........ Fulton.	'96	M.E.	Assistant Superintendent Fulton Bag and Cotton Mills, Atlanta, Ga.
B. N. Wilson....... Fulton.	'96	M.E.	Adjunct Prof. Mechanical Engineering and Supt. Grounds and Buildings, Arkansas University, Fayetteville, Ark.
R. V. Corput ...... DeKalb.	'97	M.E.	Lieutenant, Artillery Corps U.S. Army.
R. M. Crumley .... Fulton.	'97	M.E.	General Manager of Mill Supply Department Beck & Gregg, Atlanta, Ga.
F. C. Furlow....... DeKalb.	'97	M.E.	Superintendent Otis ElevatorCompany, Philadelphia, Pa.
E. F. Huff. .... Bibb.	'97	M.E.	Auditor Armour & Co., Chicago, Ill. Headquarters, Davenport, I.
W. D. Nash........ Fulton.	'97	M.E.	District Engineer Atlanta Division for Southern Cotton Oil Co., Atlanta, Ga.
J. F. Ogletree, Jr.. Meriwether.	'97	M.E.	Farming, Odessadale, Ga.
A. L. Reynolds .... Hancock.	'97	M.E.	Agent Georgia R. R. C., Mayfield, Ga.
E. L. Wright .. ... Dougherty.	'97	M.E.	Secretary and Treasurer, Albany Brick Company, Albany, Ga.
S. A. Bulloch...... Thomas.	'98	E.E.	With Foy Hardware Co., Eufaula, Ala.
J. C. Crawford..... Whitfield.	'98	E.E.	Deceased.
W. B. Everett..... Polk.	'98	E.E.	Saw Milling and Merchandising, Rockmart, Ga. R. F. D. No. 1.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
J. C. Garlington.... Gordon.	'98	M.E.	Mechanical Engineer, Havana, Cuba.
J. O. Hall.......... Warren.	'98	E.E.	Superintendent saw-mill, Belle Air, Ga.
R. H. Hart........ DeKalb.	'99	E.E.	Draughtsman and Inspector for So. Bell Telephone & Telegraph Co., Atlanta, Ga.
C. D. Honiker ..... Bibb.	'98	M.E.	With Fulton Bag and Cotton Mills, Atlanta, Ga.
H. H. Peek........ Rockdale.	'98	M.E.	Sales Manager and Engineer for Lookout Boiler and Manufacturing Company, Chattanooga, Tenn.
B. W. Seawell...... Fulton.	'98	M.E.	Assistant Engineer, The Rhode Island Company, Providence, R. I.
L. R. Camp........ Coweta.	'99	M.E.	Superintendent Southern Cotton Oil Company., Sumter, S. C.
T. M. Gibbes ...... Cobb.	'99	E.E.	With Contracting Department Georgia Railway & Electric Co. Atlanta, Ga.
J. M. Harby....... Sumter, S. C.	'99	M.E.	Sales Agent and Erecting Engineer for G. H. Bushnell Press Co., Cotton Oil Machinery, Thompsonville, Conn.
P. Jackson......... Monroe.	'99	M.E.	Draughtsman and Designing and Erecting Engineer, J. S. Schofield's Sons & Co. new shops, Macon, Ga.
W. Leigh.......... Coweta.	'99	M.E.	Structural Engineer with Brown Hoisting Machine Co., Cleveland, O.
J. H. Lowe .... Fulton.	'99	M.E.	Contracting Engineer for Wm. Bensel Co., Atlanta, Ga.
P. Moses........... Sumter, S. C.	'99	M.E.	Engineer Assistant Division Engineer Department Southern Cotton Oil Co., Columbia, S. C.
C. D. Terrell.......	'99	M.E.	Superintendent Atlanta Plow Company, Atlanta, Ga.
F. C. Turner....... Troup.	'99	M.E.	Junior Professor of Drawing, Georgia School of Technology, Atlanta, Ga.
R. J. Binford...... Decatur.	'00	E.E.	Electrical Engineer, D. C. Department, General Electric Co., Schenectady, N. Y.
H. L. Freeman..... Richmond.	'00	E.E.	Ass't Prof. Mech. Drawing, Ga. School of Technology, Atlanta, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
C. S. Jones .... Chatham.	'00	M.E.	Draughtsman Lackawanna Iron and Steel Co., Buffalo, N. Y.
P. R. Lamar .... Richmond.	'00	M.E.	Chemist for Southern Cotton Oil Co., Augusta, Ga.
S. L. Rich .... Fulton.	'00	E.E.	Purchasing Agent B.-R. Electric Co., Atlanta, Ga.
A. Skalowski ...... Richmond.	'00	E.E.	General Superintendent Augusta Telephone and Electric Co., Augusta, Ga.
E. P. Williams..... White.	'00	M.E.	Draughtsman, Lackawanna Iron and Steel Co., Buffalo, N. Y.
C. S. Wright....... Gordon.	'00	M.E.	Superintendent of Shops, Clemson College, Clemson, S. C.
W. R. Wynne...... Floyd.	'01	E.E.	Draughtsman and Travelling Inspector for Southern Bell Telephone and Telegraph Co., Atlanta, Ga.
J. P. Benjamin..... Fulton.	'01	M.E.	Inspector, Southern Inspection Bureau (Fire Insurance), Atlanta, Ga.
E. W. Camp........ Coweta.	'01	T.E.	Instructor in Carding and Spinning Georgia School of Technology, Atlanta, Ga.
D. O. Dougherty, Jr. Fulton.	'01	E.E.	Student Johns Hopkins University Medical School, Baltimore, Md.
E. Gay............. Fulton.	'01	M.E.	Inspectors, Special and Manufacturers' Risks, S. E. Tariff Ass'n, Atlanta, Ga.
W. J. Holman...... Tennessee.	'01	E.E.	Foreman Machine Shop, Georgia Coal & Iron Co., Ferrobute, Ga.
B. W. Holtzclaw... Houston.	'01	M.E.	Draughtsman, Scofield Iron Works, Macon, Ga.
W. D. Hughes...... Wilkinson.	'01	T.E.	Overseer of Carding, Meridian Cotton Mills, Meridian, Miss.
W. Langston....... Fulton.	'01	T.E.	With Howard & Bullough Amer. Mach. Co., Ltd., Cotton Machinery, So. office 814-815 Empire Bldg., Atlanta, Ga.
A. S. Mead......... DeKalb.	'01	T.E.	Instructor in Designing, Textile Dep't, Ga. School of Technology Atlanta, Ga.
G. J. Merritt ...... Bibb.	'01	M.E.	Mechanical Engineer, Dayton Coal & Iron Co., Dayton, Tenn.



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JOHN CRERAR
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REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
J. W. Moore Fulton.	'01	M.E.	Department Chemist Southern Cotton Oil Co., Atlanta, Ga.
W. Newsome Troup.	'01	M.E.	Draughtsman, R. D. Cole Manufacturing Co., Newnan, Ga.
W. P. Sullivan Chatham.	'01	M.E.	Draughtsman, Resident Engineer, Schloss-Sheffield Steel & Iron Co., Blossbury Ala.
L. C. Swords Morgan.	'01	T.E.	With Swift Cotton Mill, Elberton, Ga.
J. F. Towers Floyd.	'01	M.E.	Draughtsman, Tennessee Coal, Iron & Railway Co., Ensley, Ala.
J. S. Waterman Bibb.	'01	M.E.	Draughtsman, Mechanical Engineers & Columbus Iron Works, Columbus, Ga.
J. H. Williams Henry.	'01	M.E.	Draughtsman, Newsport News Ship Building Co.
J. T. Anthony Chatham.	'02	T.E.	Overseer Carding and Spinning, the Strickland Cotton Mills, Valdosta, Ga.
E.H. Bacon Dodge.	'02	T.E.	With Otis Elevator Co., New York, N.Y.
M. R. Berry Fulton.	'02	M.E.	Student Cornell University, Ithaca, N.Y.
I. Hardeman Bibb.	'02	T.E.	With Buffalo Forge Co., Buffalo, N. Y.
R. L. Hicks Bartow.	'02	M.E.	Estimat'g Eng'r, Boland & Gschwind Co., Ltd., New Orleans, La.
M. T. Hochstrasser Fulton.	'02	M.E.	Asst. Prof. of Mathematics, Georgia School of Technology, Atlanta, Ga.
Folger Johnson Bibb.	'02	T.E.	Student Columbia University, New York, N. Y.
A. A. Jones Chattanooga.	'02	T.E.	
C. H. Kicklighter Fulton.	'02	M.E.	Asst. Prof. of Mathematics, Georgia School of Technology, Atlanta, Ga.
E. W. Klein Fulton.	'02	M.E.	In office of Mechanical Supt., Minneapolis, St. Paul & South St. Marie R'y, Minneapolis, Wis.

REGISTER OF GRADUATES—Conitnued.

Name and County from which appointed.	Class.	Degree B S. in	Occupation.
McD. Lawrence.... Cobb.	'02	C.E.	Asst. Engineer L. & N. R. R. Co., Ala.
P. K. McKenney... Lee.	'02	T.E.	Dyeing Department Georgia School of Technology.
R. G. Merry .... Columbia.	'02	M.E.	Asst. District Engineer, Southern Cotton Oil Co., Augusta District, Augusta, Ga.
A. H. Morton...... Penn.	'02	M.E.	Asst. Engineer L. & N. R. R. Co., Birmingham, Ala.
P. H. Norcross..... Fulton.	'02	T.E.	Draughtsman Virginia-Carolina Chemical Co., Atlanta, Ga.
J. H. Paulsen...... Chatham.	'02	M.E.	Asst. Engineer, Propeller Tow Boat Co., Savannah, Ga.
J. Prioleau .... Fulton.	'02	T.E.	With Atlanta Woolen Mills, Atlanta, Ga.
C. W. Rainey...... Cobb.	'02	T.E.	Acworth, Ga. Cotton Mill Construction.
M. G. Smith....... Fulton.	'02	M.E.	With I. E. Sirrine Mill Engineer, Greenville, S. C.
H. L. Strickland... Gwinnett.	'02	M.E.	With Mexican Central Railway Shops, Laredo, Mex.
T. M. Thompson... Jasper.	'02	M.E.	Testing Laboratory of Fairbanks, Morse & Co., Beloit, Wis.
D. D. Towers...... Cobb.	'02	T.E.	With Lindale Cotton Mills, Lindale, Ga.
J. G. West, Jr. .... Fulton.	'02	T.E.	Inspector of Works American Moistening Co. Headqrs. Empire Bldg, Atlanta, Ga.
H. B. Wey .... Fulton.	'02	M.E.	With Bridgeport Brass Co., Bridgeport, Conn.
L. G. Yankey...... Dougherty	'02	T.M.	With Southern Cotton Oil Co., Savannah, Ga.

IN THE ELECTRICAL LABORATORY.

UNIVERSITY OF GEORGIA.

The complete organization of the University of Georgia is as follows:

I. PARENT INSTITUTION AT ATHENS.

This institution is composed of the following schools and departments:

1. Franklin College (College of Arts); established 1801; offering the Degree of Bachelor of Arts; having the following schools: Chemistry, Mathematics, Biology, Greek Language and Literature, History and Political Science, Latin Language and Literature, English Language and Teutonic Philology, Romance Languages, Physics and Astronomy, Metaphysics and Ethics, Rhetoric and English Literature, Pedagogy, Geology.

2. The Georgia State College of Agriculture and the Mechanic Arts (the College of Science), established 1872; offering the Degree of Bachelor of Science; having the following schools: Civil Engineering, Electrical Engineering, Agriculture (full course and short winter course), Chemistry, Physics, Biology, Mathematics, Rhetoric and English Literature, English and German, Romance Languages, Latin, History and Political Science, Metaphysics and Ethics, Military Science, Geology.

3. The Graduate Schools, offering the Degrees of Master of Arts, Master of Science, Civil Engineer and Civil and Mining Engineer.

For catalogue of the above, apply to

Walter B. Hill, Chancellor,
Athens, Ga.

4. Law Department; established in 1859; offering the degree of Bachelors of Laws.

For catalogue, apply to

Sylvanus Morris, Dean,
Athens, Ga.

II. NORTH GEORGIA AGRICULTURAL COLLEGE, DAHLONEGA.

Established 1871; offering the Degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Instruction, Bachelor of Business Science, having the following schools: Philosophy, Pedagogy, Courses in Science (including Agriculture), English Course, Latin, Mathematics, Greek, History and Economics, French, Department of Business, Military Department.

For catalogue, apply to

Joseph S. Stewart, President,
Dahlonega, Ga.

III. THE MEDICAL COLLEGE OF GEORGIA, AUGUSTA, GA.

Established 1829. For catalogue, apply to

Eugene Foster, M.D., Dean of Faculty,
Augusta, Ga.

IV. GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

Established 1888; offering the degrees of Bachelor of Science in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Textile Engineering, and in Engineering Chemistry, and having the following departments: Mathematics, Engineering Chemistry, Mechanical Engineering, English, Physics, Electrical Engineering, Civil Engineering and Experimental Engineering.

For catalogue, apply to

Lyman Hall, President,
Atlanta, Ga.

V. GEORGIA NORMAL AND INDUSTRIAL COLLEGE (FOR GIRLS), MILLEDGEVILLE, GA.

Established 1889; offering the following Diplomas: Normal Diploma, Collegiate Diploma, and the following Certificates of Proficiency: In Bookkeeping, Stenography, Dressmaking, Freehand Drawing; organized in the following departments: Normal Department, Normal and Industrial Art, Collegiate Department, Physical Training, Industrial Department, Department of Domestic Science, Department of Music and Fine Art. For catalogue, apply to

J. Harris Chappell, President, Milledgeville, Ga.

VI. STATE NORMAL SCHOOL, ATHENS, GA. (COEDUCATIONAL).

Established 1891; having the following courses: Common School Course (one year), Graduate Course (three years); including the following schools: Literature, English, Elementary Science, Mathematics, History and Geography, Geography, Latin, Art, Education and Manual Training, Penmanship, Psychology, Pedagogy, Domestic Science.
For catalogue, apply to E. C. Branson, President,
Athens, Ga.

VII. GEORGIA INDUSTRIAL COLLEGE FOR COLORED YOUTHS, AT COLLEGE, NEAR SAVANNAH, GA.

Established 1890, and organized in the following schools: English, Pedagogy, Mathematics, Science, Agriculture, Manual Training (including Mechanical Drawing, Woodworking and Ironworking); Department of Trades (Carpentry, Blacksmithing, Masonry, Painting, Tailoring, Shoemaking, Sewing). For catalogue, apply to

R. R. Wright, President, College, Ga.

Summary of Students in the University Organization.

(*a*) OF COLLEGE GRADE:	
In Franklin College	143
In State College of Agriculture	168
In Graduate Schools	2
In North Georgia Agricultural College	230
In School of Technology (including Sub-App)	483
In Normal and Industrial College for Girls	299
In State Normal School	527
Industrial College for Colored Youths	32
Total	1884

(*b*) IN PREPARATORY DEPARTMENTS:	
In Industrial College for Colored Youths	404
In Normal and Industrial College	112
In State Normal School	71
Total	587

(*c*) IN PROFESSIONAL SCHOOLS:	
In the Law Department	46
In the Medical Department	110
	156

RECAPITULATION.

Total Students of College Grade	1884
Total Students Professional Schools	156
Total Students Preparatory Departments	587
	2627

VOL. II.

No. I.

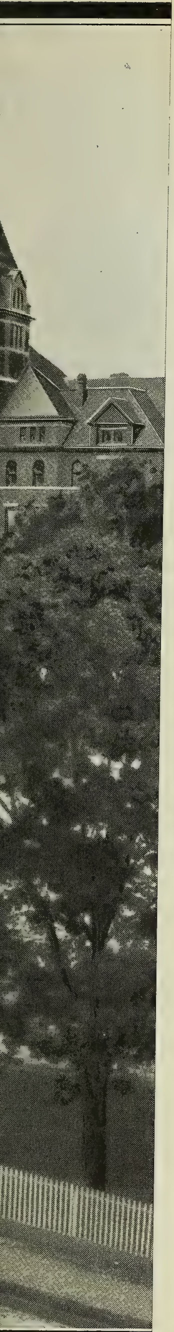
THE
GEORGIA SCHOOL OF TECHNOLOGY

MECHANICAL ENGINEERING
ELECTRICAL ENGINEERING
CIVIL ENGINEERING
TEXTILE ENGINEERING
ENGINEERING CHEMISTRY

1903-1904

PUBLISHED QUARTERLY
BY
THE GEORGIA SCHOOL OF TECHNOLOGY
OFFICE AT THE SCHOOL
ATLANTA, GEORGIA
APRIL, 1904

Entered at the Post-office at Atlanta, Ga., and admitted for
transmission through the mails as Second-class Matter.



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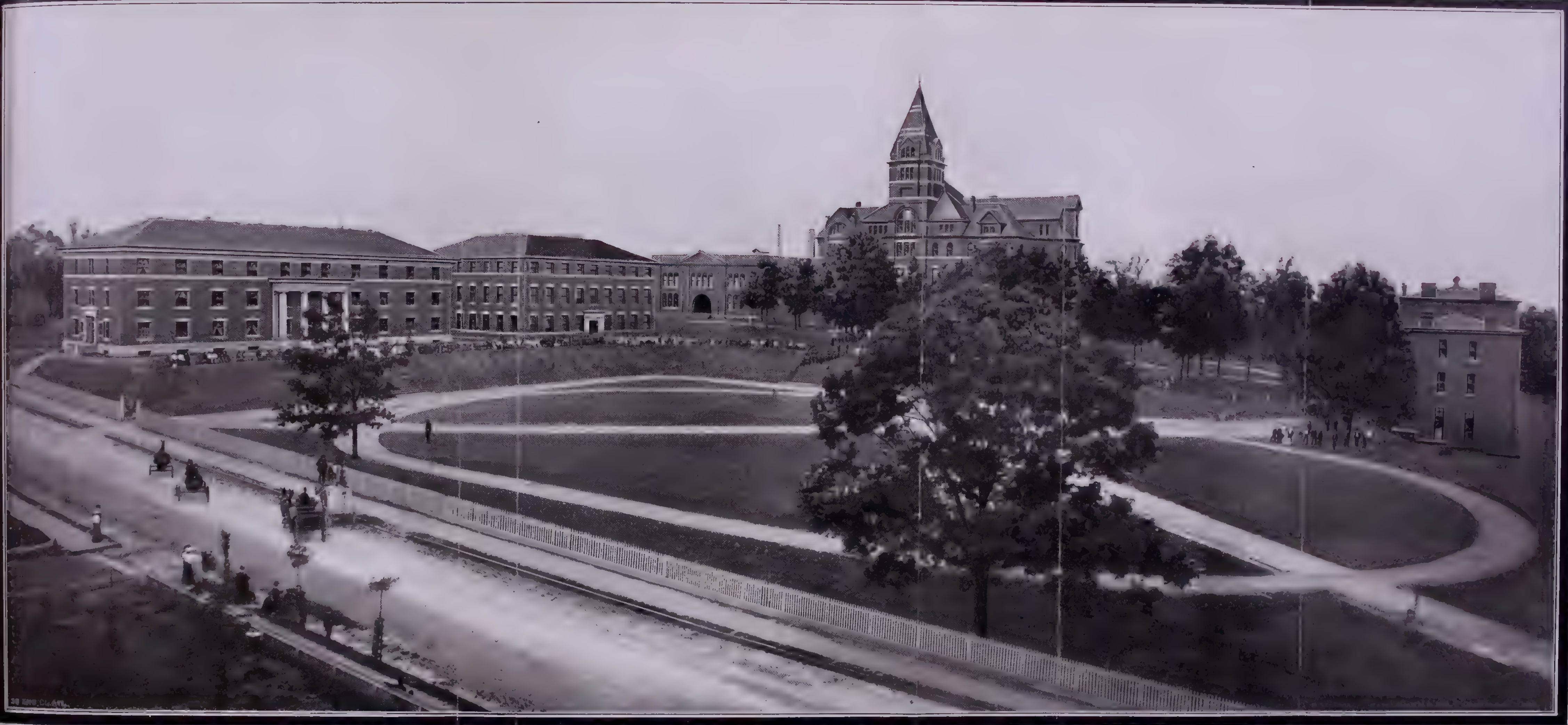

SWANN DORMITORY. ELECTRICAL BUILDING. SHOPS. ACADEMIC BUILDING. THE A. FRENCH TEXTILE SCHOOL. DORMITORIES. KNOWLES DORMITORY.

MECHANICAL ENGINEERING, ELECTRICAL ENGINEERING, CIVIL ENGINEERING, TEXTILE ENGINEERING, ENGINEERING CHEMISTRY.

CAMPUS AND BUILDINGS, GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

ANNUAL ANNOUNCEMENT

OF THE

GEORGIA SCHOOL OF TECHNOLOGY

A SCHOOL OF MECHANICAL, ELECTRICAL, CIVIL AND TEXTILE ENGINEERING, AND ENGINEERING CHEMISTRY, A DEPARTMENT OF THE UNIVERSITY OF GEORGIA.

ATLANTA, GA.

ORGANIZED 1888.

1903–1904.

ATLANTA, GEORGIA :
THE FRANKLIN PRINTING AND PUBLISHING CO.
GEO. W. HARRISON (STATE PRINTER) GENERAL MANAGER.
1904.

TABULAR ALMANAC.

1903

JULY

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1905

JANUARY

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MARCH

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MAY

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JUNE

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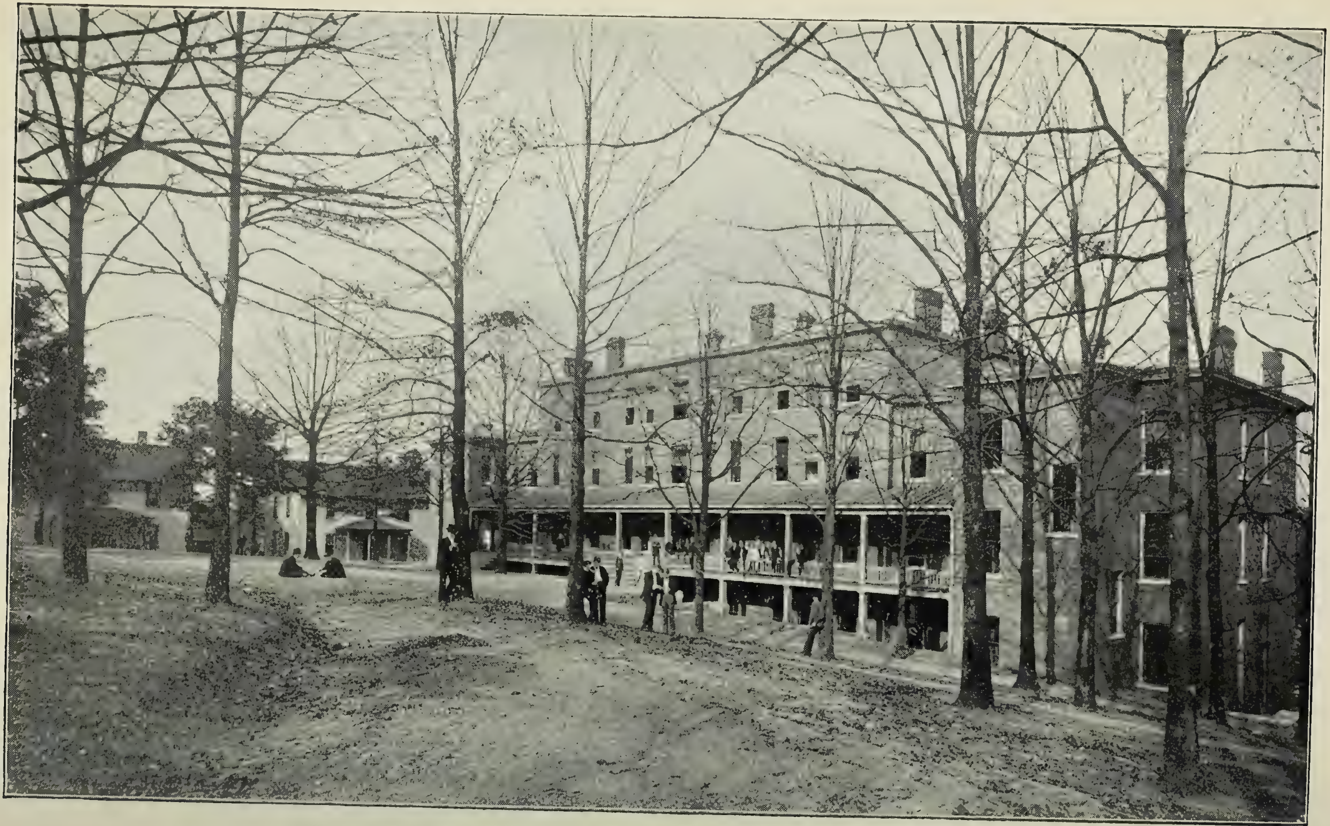

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Georgia School of Technology.

CALENDAR 1904-1905.

First Term.

Begins September 28, 1904; ends December 23, 1904.
(12 weeks.)

Second Term.

Begins January 2, 1905; ends March 24, 1905.
(12 weeks.)

Third Term.

Begins March 27, 1905; ends June 22, 1905.
(12 weeks.)

Commencement Day, Thursday, June 22, 1905.

By order of the Board of Trustees, the only holidays to be observed are Thanksgiving Day and Memorial Day (April 26th).

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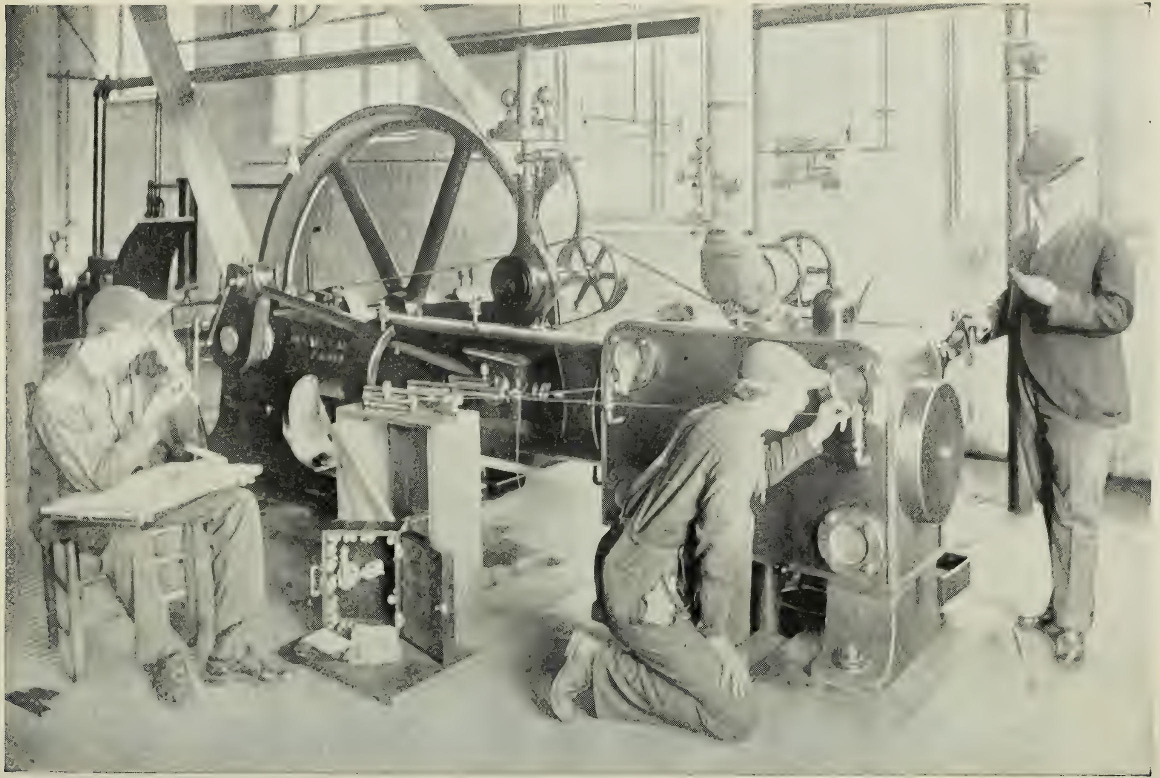

INDICATING TEXTILE ENGINE. WORK WITH SLIDE RULE AND PLANIMETER.

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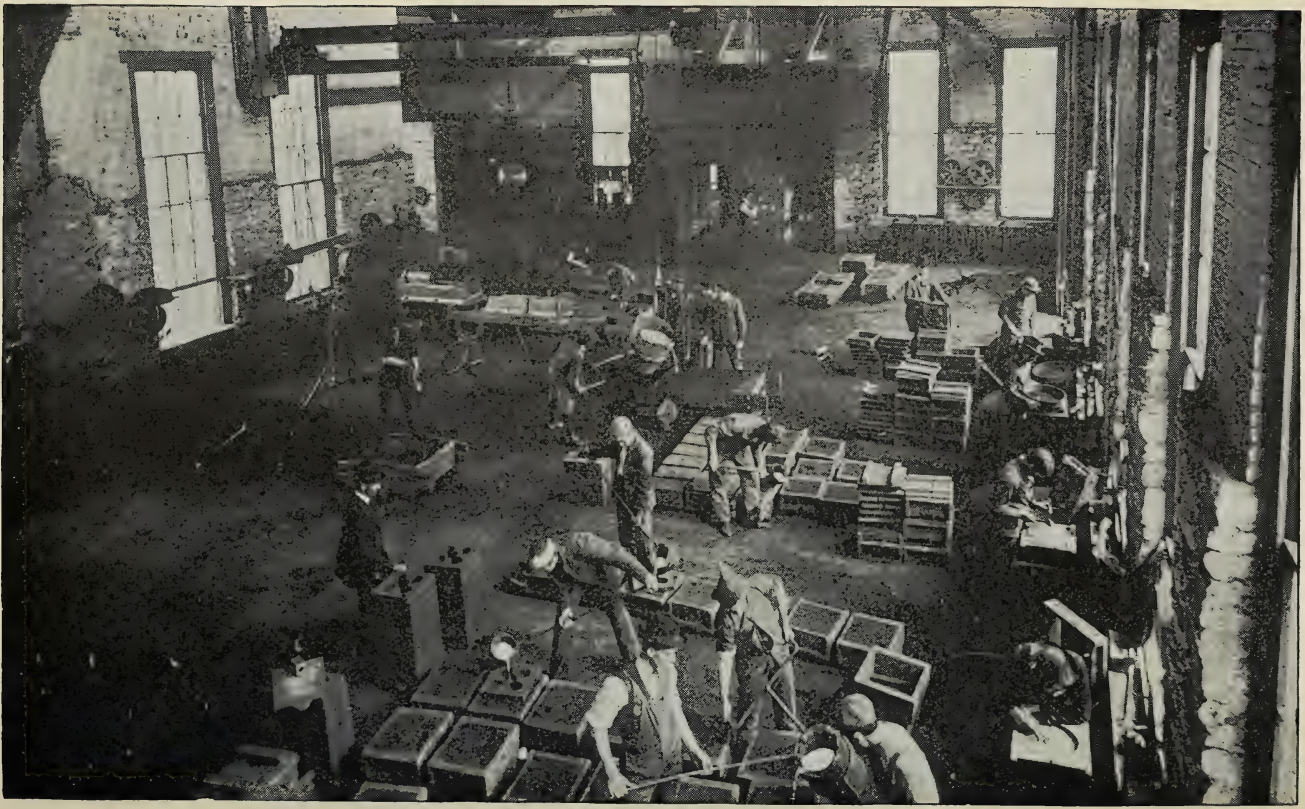
WALTER M. KELLEY,	ATLANTA, GA.



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LYMAN HALL, LL.D. ---------- President.
T. P. BRANCH, B.E. ---------- Secretary.
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WM. H. EMERSON, PH.D. ---------- Professor.
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G. H. BOGGS, B.S., PH.D. ---------- Adjunct Professor.

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R. H. LOWNDES, M.E. ---------- Adjunct Professor.

FACULTY—Continued.

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S. S. WALLACE, A.M. -----------Junior Professor.
WILLIAM GILMER PERRY, A.M. Adjunct Professor.
ELBERT W. G. BOOGHER, M.A.--Adjunct Professor.
J. F. JOHNSTON, A.B. ----- -----Adjunct Professor.
J. M. STEPHENSON* -----------Adjunct Professor.
HOWARD BROWN MERRELL, A.B. Adjunct Professor.

Electrical Engineering.

ARTHUR H. FORD, E.E. -------Professor.

Civil Engineering.

T. P. BRANCH, B.E. ------ ------Professor.

Experimental Engineering.

J. N. G. NESBIT, B.S. ------ ------Professor.

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J. B. EDWARDS, B.S., E. and M.E. Professor.
C. H. KICKLIGHTER, M.E.-------Adjunct Professor.

Physical Culture.

W. A. JACKSON, Jr., M.D. ------Director.

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________________ ---- -----------Professor.

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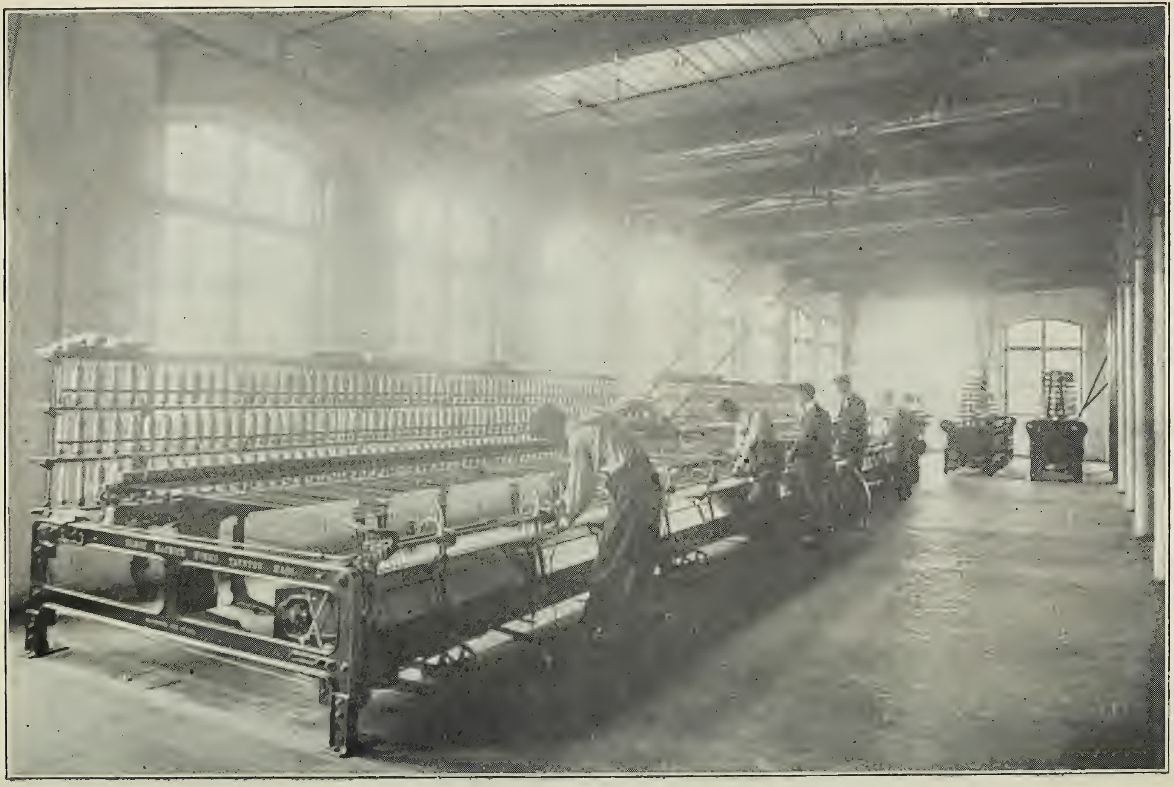
*Resigned December 30, 1903.



PRACTICE ON THE SPINNING MULE. LENGTH OF MACHINE 54 FEET.

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FACULTY—Continued.

Textile Engineering.

W. N. RANDLE (Graduate Philadelphia Textile School) ------------------------------ Director.

THE A. FRENCH TEXTILE SCHOOL.

E. W. CAMP, T.E., In charge Carding and Spinning Department.

H. HEBDEN, In charge Warp Preparation, Weaving and Finishing Departments.

J. G. SWANSON, T.E., In charge Bleaching and Dyeing Departments.

W. J. WEST, In charge Knitting Department, and Assistant Instructor in Weaving.

T. S. THOMAS, Assistant Instructor in Carding and Spinning.

Shops.

J. S. COON, M.E. -------------- Superintendent.

E. B. MARTINDALE, General Foreman, Foreman Machine Shop.

HORACE A. THOMPSON ---- Foreman, Smith Shop.

T. O. JONES ---- ------------ Foreman, Wood Shop.

WM. VAN HOUTEN --------- Foreman, Foundry.

H. H. NORMAN ------------- Instructor, Wood Shop.

W. F. GRIFFIN ------------- Instructor, Machine Shop.

JOHN H. HENIKA ----------- Instructor, Wood Shop.

J. SHEPHERD --------------- Instructor, Machine Shop.

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J. S. Akers	676 Piedmont Avenue.
H. V. Black	222 Washington Street.
G. H. Boggs	522 Spring Street.
E. W. G. Boogher	Dormitory.
A. Bramlet	105 West Baker Street.
T. P. Branch	129 Juniper Street.
E. W. Camp	58 Cherry Street.
J. S. Coon	26 Kimball Street.
J. B. Edwards	305 Houston Street.
W. H. Emerson	175 Ashby Street.
W. H. Ferguson	Ft. McPherson, Ga.
A. H. Ford	25 Howard Street.
Miss Madge Flynn	202 Jackson Street.
O. T. Geckler	364 Luckie Street.
W. F. Griffin	200 West Kimball Street.
Lyman Hall	142 West North Avenue.
Harry Hebden	280 Spring Street.
J. H. Henika	687 South Pryor Street.
W. A. Jackson, Jr	180 West North Avenue.
J. F. Johnston	270 Crew Street.
T. O. Jones	Hemphill Avenue, beyond Emmett Street.
C. H. Kicklighter	50 Oglethorpe Avenue.
C. H. Light	56 W. North Avenue.
R. H. Lowndes	57 Cherry Street.
E. B. Martindale	87 Luckie Street.
K. G. Matheson	Dormitory.
H. B. Merrell	387 Spring Street.
A. B. Morton	464 Spring Street.
J. N. G. Nesbit	405 Spring Street.
H. H. Norman	312 West Fourth Street.
W. G. Perry	56 West North Avenue.
W. N. Randle	399 Luckie Street.
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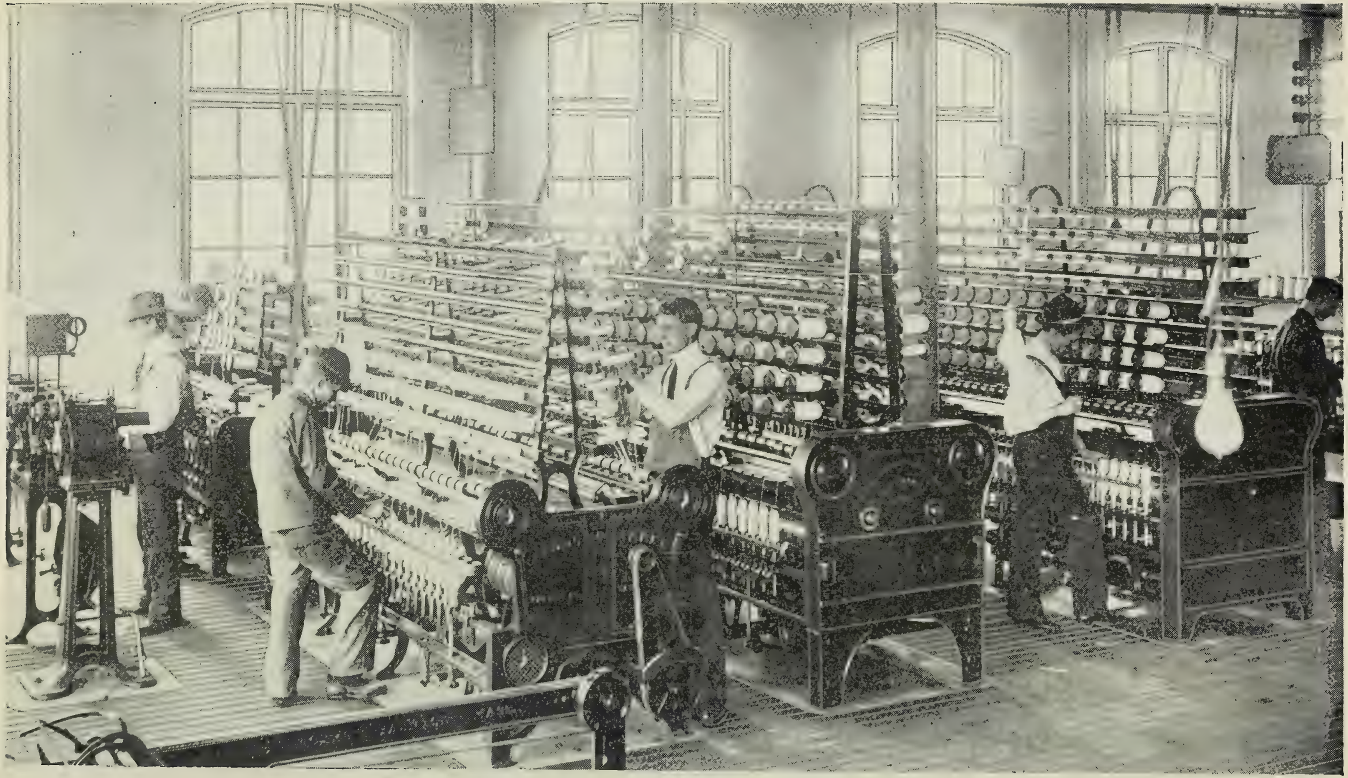
J. G. Swanson	84 West North Avenue.
T. S. Thomas	9 Corput Street.
H. A. Thompson	299 Crew Street.
F. C. Turner	385 West Peachtree Street.
William Van Houten	211 West Pine Street.
S. S. Wallace	Swann Dormitory.
W. J. West	5 Payne Avenue.



CONE WINDERS AND TWISTERS.

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STUDENTS.

Senior Class.

Acker, W. H.	Fulton
Albury, U. E.	Florida
Anderson, J. R.	Florida
Blackburn, B. M.	Fulton
Brandon, W. W.	Thomas
Campbell, W. C.	Muscogee
Davis, W. M.	Bibb
Davenport, F. B.	Fulton
Dobbs, Z. T.	Fulton
Edmondson, C. H.	Chattooga
Emery, A. R.	Fulton
Estes, J. W.	Clayton
Furlow, S. D.	Sumter
Glenn, G. R.	Fulton
Hall, J. A.	Fulton
Harbour, G. A.	Fulton
Hilliard, C. M.	Hart
Holtzclaw, R. C.	Houston
Hunnicutt, L. L.	Fulton
Jones, C. A.	Cobb
Jordan, R. K.	Jackson
Lamar, T. B.	Stewart
Lambert, T. B.	Fulton
Maddox, F. R.	Floyd
Mathews, C. W.	Talbot
Mathewson, S. B.	Richmond
McCamy, C. C.	Whitfield
Mitchell, R. A.	Fulton
Montsalvatge, A.	Fulton
Moore, B.	Clayton
Moore, J. E.	Sumter
Morton, F. C.	Fulton
Neeley, F. H.	Burke
Pringle, D. R.	Thomas
Redwine, L. S.	Coweta
Reid, I. H.	Taliaferro
Sanders, M. T.	Greene
Scales, H. J.	Fulton
Shepherd, J.	DeKalb
Stephens, P. V.	Florida
Strauss, H. M.	Fulton
Stribling, T. E.	Cobb
Strickland, N. H.	Gwinnett
Strong, C. H.	Chatham
Sutker, S.	Chatham
VanVorst, J. P.	Ware
Vaughan, J. H.	Fulton
Whitner, H. F.	Fulton
Wright, A. H.	Gordon

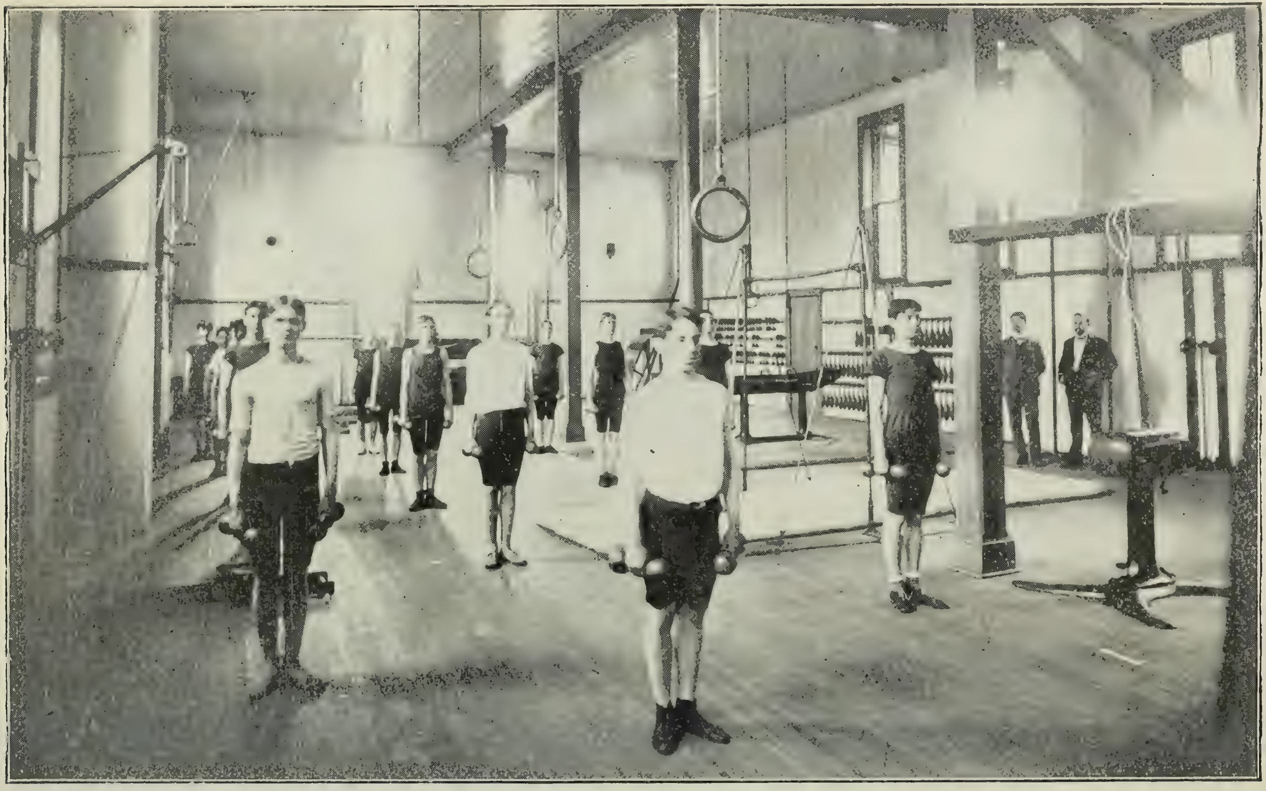
Middle Class.

Baird, L. G.	Fulton
Basch, E. B.	Chatham
Beane, J. S.	Habersham
Blackford, A. L.	Fulton
Brogdon, J. S.	Gwinnett
Burns, W. C.	Banks
Bussey, E. H.	Randolph
Calloway, H. I.	Bibb
Collier, L. S.	Fulton
Collins, J. D.	Fulton
Cook, J. E.	Pulaski
Crane, C. L.	DeKalb
Daniels, L. C.	Fulton
Dunn, E. C.	Florida
Eagan, H. E.	Fulton
Fain, H. G.	Fulton

Fenn, F. L.	DeKalb
Gann, G. K.	Fulton
Ginsberg, S. I.	Fulton
Gregg, R.	Fulton
Hartz, M. A.	Bibb
Hodgson, W. B.	Clarke
Houseal, J. W.	Polk
Howard, J. H.	Florida
Kroner, F. A.	Clarke
Loyd, J. C.	Troup
Mays, S. W.	Fulton
McConnell, J. H.	Bartow
McGhee, E. P.	Floyd
McLarty, J. W.	Carroll
Montgomery, W. F.	Floyd
Morton, T. W.	Clarke
Parker, G. W.	Richmond
Paulsen, G. C.	Chatham
Pringle, W. A.	Thomas
Smith, S. K.	Irwin
Spence, J. R.	Mitchell
Stanton, T. D.	Walton
Tatum, C. S.	Dade
Thompson, P. W.	Fulton
Walden, F. J.	Jefferson
Watson, J. G.	Cobb
Weeks. J. E.	Chatham
Wynn, V. H.	Floyd

Junior Class.

Allen, J. K.	Putnam
Anderson, J. H.	Newton
Anderson, R. A.	Cobb
Appleby, W. C.	Jackson
Armitage, G.	Pierce
Bagwell, W. N.	Gwinnett
Barrett, J. B.	Virginia
Beck, L. H.	Spalding
Brandon, E. R.	Thomas
Bruce, M.	New York
Broomhead, E. B.	Fulton
Charlton, J. F.	Chatham
Chestney, B. R.	Bibb
Coburn, L. S.	Chatham
Collier, J. Z.	Fulton
Connally, P. H.	Paulding
Courtney, H. B.	Colquitt
Davies, F. C.	Tennessee
Davis, Grier	Newton
Day, C. C.	Pickens
Donaldson, C.	Fulton
Dumas, W. C.	Hancock
Edwards, A. M.	Baldwin
Edwards, G. A.	Taliaferro
Emerson, L. A.	South Carolina
Epstein, E.	Fulton
Fagan, F. J.	Fulton
Fuller, T.	Glynn
Gilbert, S. L	Bartow
Glenn, M. T.	Rockdale
Goodhart, C. R.	Manila
Greene, H. G.	Fulton
Greer, L. B.	Fulton
Haines, G.	Chatham
Hartridge, E. M.	Glynn
Head, J.	Spalding
Hills, G. B.	Fulton
Holt, V. P.	Gilmer
Hoyt, C. A.	Florida
Hull, H. H.	Clarke
Hunt, R. A.	Polk
Ingle, J. P.	Fulton
James, E. R.	DeKalb
Jerger, J.	Thomas
Lowe, G. O.	Fulton
Lozier, I. N.	Washington
Marshall, D. S.	Putnam
McCord, C. M.	Fulton
Maclean, M. R.	Chatham
Meckell, A. W.	Fulton
Newton, G. S.	Habersham
Noyes, E. P.	Camden
Orr, S. M.	South Carolina
Parker, F. K.	Fulton
Platt, J. C.	Richmond
Prather A.	Muscogee
Purdom, A. B.	Pierce
Raht, T. E.	Tennessee



CLASS IN GYMNASIUM.

THE
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Ralls, S. J.	Fulton
Roberts, E. E. G.	DeKalb
Roberts, S. N.	DeKalb
Rowan, F. M.	Bartow
Sims, H. H.	Wilkes
Smith, B. H.	North Carolina
Smith, C. Hall	Bibb
Smith, C. Harmon	Fulton
Smith, D. D.	Decatur
Smith, F. H.	Fulton
Smith, J. O.	Fulton
Strickland, G. B.	Gwinnett
Sweet, C. A.	Fulton
Thompson, L. M.	Fulton
Tidwell, R. F.	Fulton
Tigner, C. H.	Meriwether
Vaughan, H. R.	Fulton
Warfield, W.	Chatham
Wells, A.	Texas
Whitner, C. S.	Fulton
Wilcox, A. L.	Chatham
Winship, G.	Fulton
Witman, J. M.	Bibb
Woodruff, J. L.	Tattnall
Wolf, T. L.	Laurens
Woolfolk, A. R.	Fulton

Apprentice Class.

Adams, W. H.	Fulton
Adamson, C.	Carroll
Adler, B.	Calhoun
Angas, R. M.	Duval
Apple, J. J.	Chatham
Arnold, C. A.	Elbert
Baker, J. E.	Fulton
Baker, V. G.	Fulton
Barge, R. I.	Fulton
Barnes, S. L.	Fulton
Beach, L. D.	Fulton
Bell, W. S.	Fulton
Blun, W. S.	Chatham
Brooks, C. J.	Muscogee
Brown, L. B. S.	Pulaski
Cheney, G. W. H.	Floyd
Clarke, L. C.	Meriwether
Cook, J. R.	Newton
Corley, C.	Bartow
Corse, H. M.	Florida
Crawley, R. C.	Ware
Crittenden, A. M.	Randolph
Crumbley, J. J.	Quitman
Crumley, W. G.	Fulton
Davis, C. K.	Chatham
Dean, J. F.	Mississippi
Dewar, R. A.	Fulton
Downing, H. C.	Fulton
Draper, J. H.	Fulton
DuPre, W. E.	Fulton
Edmondson, F.	Chattooga
Edwards, P. S.	Bibb
Epstein, M.	Fulton
Ford, I. S.	Berrien
Frix, W. A.	Gordon
Gable, F. R.	Fulton
Gager, C. B.	Tennessee
Gann, R. M.	Fulton
Guerry, D.	Bibb
Hallman, J. F.	Fulton
Hamilton, C. L.	Whitfield
Hardwick, S. G.	Texas
Hegner, W. R.	Fulton
Heidt, H. V	Fulton
Heyward, R. B.	Fulton
Hicks, E. O.	Laurens
Hodgson, G. O.	Florida
Holtzclaw, J. G.	Houston
Holtzendorf, C. B	Floyd
Hutchinson, T. G.	Fulton
Hutchinson, W. J.	Fulton
Hynds, W. G.	Hall
Ison, W. F.	Fulton
Jackson, R.	Monroe
Jay, W. W.	Randolph
Johnson, W. H.	Chattahoochee
Kelley, C. S.	Carroll
Kenner, E. R.	Murray
King, J. A.	Webster
Klein, R. V.	Fulton

Knight, A. C.	Bartow
Kriegshaber, V. W.	Fulton
Laboon, B.	Walton
Lafkowitz, S.	Muscogee
Leonard, R. E.	South Carolina
Longino, B. T.	Campbell
Longino, O. H.	Fulton
Lovett, J. A.	Fulton
Lycett, E. C	Fulton
Mann, L. B.	Telfair
Marchmont, G. T.	Fulton
McCandless, S. C.	Chatham
McCord, J. R.	Fulton
McDaniel, J. S.	Stewart
Moore, W. I.	Sumter
Mullin, F.	Fulton
Murphy, F. E.	Ware
Murray, C. F.	Cobb
Murray, F.	Muscogee
Myrick, J. D.	Baldwin
Newell, C. E.	Cobb
Parker, H. E.	Fulton
Parrish, C. R.	Bulloch
Pease, J. N.	Muscogee
Peck, W. H.	Fulton
Pierce, E. L.	Florida
Pittard, C. W.	Clarke
Plant, R. H.	Bibb
Polak, A. V.	Fulton
Read, H.	Fulton
Richards, G.	Jackson
Riley, R. A.	Fulton
Russell, G. E.	Talbot
Sanders, S.	Tennessee
Schultz, C.	Chatham
Schwab, R.	Fulton
Simons, W. L.	South Carolina
Simonton, A. A.	Carroll
Sims, J. E.	DeKalb
Sparks, A. H.	Washington
Stevens, V. E.	Lowndes
Stiles, J. C.	Bartow
Stout, G. M.	Tennessee
Subers, W. R.	Decatur
Summers, E. S.	South Carolina
Swann, T. C.	Newton
Talley, C. R.	Brooks
Thomas, W. R.	Ware
Thompson, H. F.	Jasper
Thompson, R. Y.	Jasper
Thomson, M.	Chatham
Thomson, R. S.	Fulton
Thornton, C. N.	Fulton
Trapnell, J. M.	Bulloch
Underwood, E. H.	Mitchell
Wallace, W. L.	Rockdale
Weathers, G. P.	Pike
Weeks, J. R.	Chatham
Wilburn, W. E.	Jasper
Wilcox, L. B.	Bibb
Wilkinson, H. K.	Lowndes
Willatowski, A. F.	Fulton
Wilson, W. A.	Henry
Winchester, C. M.	Mitchell
Wood, W. E.	South Carolina
Yeates, W. S.	Fulton

Sub-Apprentice Class.

Armor, W. N.	Dodge
Atkinson, S. R.	Fulton
Beaullieu, C. B.	Hinds
Blakeman, S. R.	Mississippi
Block, I. H.	Fulton
Branch, C. H.	DeKalb
Brannon, G. R.	Coweta
Brown, C. S.	DeKalb
Brown, H. A.	Houston
Brown, L.	Franklin
Brown, R. M.	Fulton
Burch, A. A.	Montgomery
Burke, J. G.	Fulton
Burnett, T.	Lowndes
Butler, E. G.	Chatham
Cannon, H. L.	Bartow
Chadwick, L. S.	Douglas
Chastain, G. M.	Macon
Clarke, A.	McIntosh
Clarke, T. H.	Webster
Cobb, A. J.	Clarke
Cohen, R. J.	Florida

Colville, F. A.	Fulton
Combs, E. S.	Henry
Cothran, J. R.	Fulton
Cromer, L. C.	Greene
Dalgarn, S. S.	West Virginia
Davenport, J. E.	Fulton
Day, A. J.	South Carolina
Day, J. F.	South Carolina
Derrick, E. D.	Sumter
Dessau, W. G.	Bibb
Dickey, E.	Fulton
Dillard, R. B.	Clarke
Dudley, W. W.	Fulton
Dunn, W. L.	Fulton
Everett, C. H.	Twiggs
Ezell, T. M.	Jasper
Felder, C. W.	Sumter
Fields, H. L.	Henry
Floersh, M. E.	Fulton
Frazier, J. D.	Fulton
Furlow, J. W.	Butts
Gaston, J. W.	Mississippi
George, C. P.	Fulton
George, W. H.	Fulton
Gill, G. C.	Meriwether
Graves, H. A.	Mississippi
Hammond, J. P.	Spalding
Hargrove, S. J.	Dodge
Harris, L. H.	Florida
Hatcher, J. W.	Twiggs
Haynes, C.	Florida
Henderson, C. H.	Houston
Henley, J. B.	Pickens
Hill, H. D.	Quitman
Holleman, H. I.	Macon
Horton, E. R.	Gwinnett
Howe, G. C.	Hall
Hudson, D. C.	Sumter
Ison, R. D.	Fulton
James, L. P.	Fulton
Johnson, T. F.	Chatham
Jones, A. P.	Cobb
Jones, A. V.	Cherokee
Jones, J. P.	Coweta
Kehoe, D. E.	Chatham
Kelley, F. L.	Effingham
Kenney, J. J.	Fulton
King, B.	Bibb
King, G.	Chattahoochee
King, J. O.	Fulton
King, R. L.	Webster
Kollock, E. C.	Habersham
Lane, R.	Fulton
Lanier, R. B.	Emanuel
Lawson, F.	Thomas
L'Engle, P. E.	Fulton
Lester, W. F.	Decatur
Levi, W.	Alabama
Lipshutz, J.	Chatham
Maddox, W. E.	Milton
Mann, E. T.	Meriwether
Marshall, J. L.	South Carolina
Martin, C. D.	Pike
Mathews, Ike	Pike
McArthur, P. A.	Florida
McCauley, J. H.	Tennessee
McClure, H.	Floyd
McCook, W. G.	Chattahoochee
McIntyre, D. I.	Fulton
McKey, W. H.	Lowndes
McManus, Y. H.	Fulton
McMillan, T. L.	Fulton
Merrill, W. J.	Florida
Milner, L. P.	Pike
Mitchell, J.	Thomas
Mitchell, J. M.	Decatur
Mitchell, J. P.	Decatur
Moore, J. F.	Kentucky
Morris, C. R.	Floyd
Morton, T. C.	Jones
Mundy, H. B,	Columbia
Murdock, R. J.	South Carolina
Murph, B. B.	Houston
Neal, H.	Harris
Nisbet, J. C.	Dade
Osborne, J. D.	Chatham
Palin, W. A.	Thomas
Paramore, H. H.	Sumter
Peebles, W. H.	Mississippi
Perry, G. S.	Gwinnett
Poo, O.	Cuba
Pope, H.	Coweta

Georgia School of Technology.

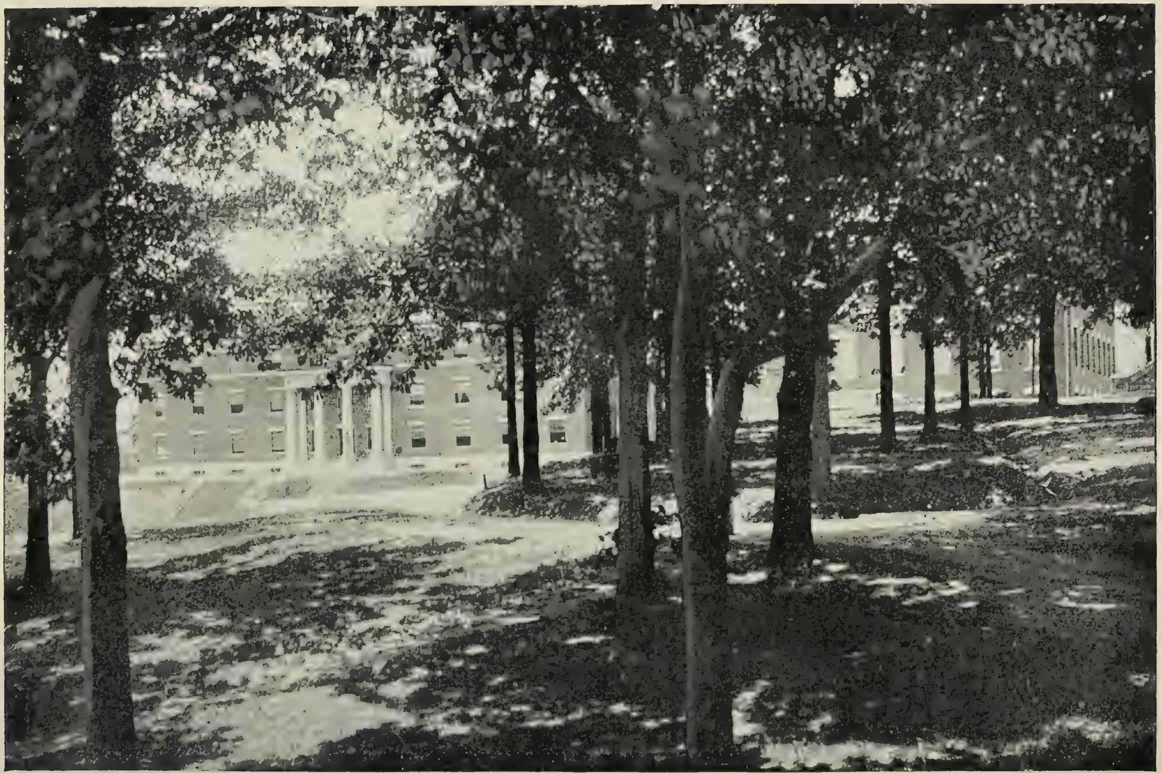
Rainey, E. C.	Putnam
Rainwater, E. M.	Fulton
Rice, P. B.	Emanuel
Robert, L. W.	Jasper
Roberts, O. F.	Florida
Robinson, F.	Fulton
Rodriguez, C.	Cuba
Rogers, E. H.	Milton
Rogers, F.	Dodge
Rosser, L. Z.	Fulton
Rumph, S. C.	Macon
Selman, J. V.	Cobb
Simmons, C. M.	Floyd
Simpson, E. P.	Habersham
Simpson, W. C.	Habersham
Smith, E. M.	Thomas
Smith, F. A.	Fulton
Smith, P. B.	Floyd
Snow, P. S.	Wilcox
Snow, R. A.	Walker
Snyder, W. R.	Fulton
Spencer, E.	Fulton
Spivey, T. W.	Meriwether
Squires, O. G.	Cobb
Stewart, R. J.	Jones
Stiles, H. G.	Bartow
Stovall, J. B.	Fulton
Tanner, H. M.	Fulton
Taylor, R. D.	Spalding
Thomas, J. D.	Glynn
Thornton, P. H.	Greene
Thrash, J. M.	Meriwether
Trawick, J. I.	Floyd
Turner, J. S.	Putnam
Twiggs, P. E.	Chatham
Underwood, F. C.	Pike
Van Dyke, R. C.	Fulton
Vining, J. O.	Newton
Vittur, C.	Fulton
Walker, F. M.	Putnam
Walsh, R. E. L.	South Carolina
Ware, H.	Pulaski
Welch, F. M.	Colquitt
Wilkinson, F.	Troup
Williams, A. L.	Fulton
Williams, C. A.	White
Williams, E. L.	Colquitt
Wise, L. H.	Thomas
Witcher, C.	Clarke
Woodall, J. H.	Talbot
Wood, R. V.	Polk
Yarbrough, J. E.	Pike
Yow, H.	Franklin

Special Textile Class No. 2.

Carlock, P. S.	Douglas
Richardson, F. H.	Hart
Stacey, E. H.	Glynn

Special Textile Class No. 1.

Anderson, R.	Monroe
Bennett, J. K.	Troup
Bradley, G. T.	Fulton
Day, D. R.	South Carolina
Everett, M. E.	Houston
Inglis, W. L.	Florida
McGhee, Edward	Troup
Reynolds, C. F.	Hancock
Smith, H. C.	South Carolina
Verdery, E. F.	Richmond
Vinson, I. B.	Alabama



SWANN DORMITORY AND ELECTRICAL BUILDING.

THE
[illegible]

Special Mechanicals. Second Year.

Bayard, N. R.	Floyd
Boyd, G. M.	Bartow
Edge, Dexter	Muscogee
Fowler, W. C.	Clark
Hughes, B. I.	Floyd
Kuker, L. C.	South Carolina
Poole, D. T.	Douglas
Strauss, L. I.	South Carolina
Moses, M. M.	Muscogee

Special Mechanicals. First Year.

Bristow, J. L.	Kentucky
Hastey, J. B.	Meriwether
Ison, J. G.	Fulton
Moore, J. W.	Brooks
Pierpont, W. J.	Chatham
Seals, W. O.	Fulton
Smith, C. Z.	Meriwether
Wells, G. K.	Effingham
Woodward, S. D.	Butts
Yarbrough, C. A.	Spalding

Irregular Specials.

Dean, J.	Floyd
Ellis, C. D.	Chatham
Pierce, J. I.	Texas
Steele, B. W.	Fulton

Post-Graduates.

Camp, L. R.	Coweta
Evans, H. O.	Texas
Thrash, J. L.	Meriwether

Total 510

DEPARTMENTS.

DEPARMENT OF MATHEMATICS.

In this department, the base upon which the superstructures of the different departments of engineering are laid, every effort is made towards thoroughness. Unless proficiency is attained it is useless for the student to proceed, and, in fact, he is not allowed to do so.

More instructors are engaged in this department than in any other, and often the sections are smaller in order to give as much individual attention as possible.

Unless an applicant for the Sub-Apprentice Class or Special Textile Course is able to meet the requirements on page 84, he should become so before coming to the school.

Unless an applicant is quite familiar with the requirements for the Apprentice Class as mentioned on page 87, he should apply for the Sub-Apprentice.

It is not sufficient for the applicant to say that he has "been over" the subjects required of him. He is required to convince the authorities that he can answer questions similar to those given on pages 95-97.

The requirements are not meant to be hardships or severe tests of the applicant's ability or memory, but they are meant to benefit him by placing him where he can make satisfactory progress, and where he will not be discouraged by requirements he is unable to meet.

Every course leading to a degree includes an extensive course of instruction in Pure Mathematics.

Young men who intend to take any course are urged to prior preparation in this subject before reporting for examinations. Coming better prepared than the requirements demand will prove a source of profit, of self-confidence, and of ability to master a course of study which the student will never fail to appreciate.

INSTRUCTION.

Recitations are made daily, an hour being devoted to each section. Perfection in the recitation system is attained by marking every student, as nearly as possible, daily, thereby requiring a thorough preparation of each lesson. With this end in view, classes are subdivided into sections, each section numbering generally, from twelve to twenty students.

In the lower branches attention is given to continued drills in examples and problems, and to accuracy in recitation. In the higher branches interest is awakened by original problems and practical investigations, requiring a thorough understanding of the principles of the text. The study of the Differential and Integral Calculus and Differential Equations is pursued and completed in the Junior Class, thereby enabling their early application in Mechanics. In surveying, instruction is given with the instruments in the field, by lectures and recitations in the classroom, and by mapping.

All students, except Textiles, are required to take surveying and field practice during the third term of the Junior year.

Requirements for entrance.—See pages 84-87.

Course of Study.—See pages 65-75.

Specimen Examinations.—See pages 95-97.

DEPARTMENT OF ENGINEERING CHEMISTRY.

The purpose of the course offered by this department is to give the student, in the first place, a broad foundation in general and theoretical Chemistry, so that in his future work new problems may be met intelligently and solved. In the second place, to give him special training in those branches of Chemistry which have been most generally applied industrially, so that he may be immediately useful.

The degree conferred upon the graduates of this course is that of Bachelor of Science in Engineering Chemistry. A schedule of subjects required of candidates for this degree is given under "Course of Study," pages 75-77.

The graduate will be prepared to pursue the subject either on its manufacturing or analytical side. With respect to his fitness to take up work in chemical manufacturing, the course offers exceptional opportunities. The work in Mechanical Engineering, embracing considerable shop practice, mechanism, elementary mechanics, and the steam-engine, will enable him to understand machinery, superintend the running of it, and take charge of various mechanical operations. The course in drawing will enable him to understand mechanical drawings and express his ideas by them. The course in Electricity will enable him to understand electrical appliances, and to superintend industrial operations carried on by means of electricity. His knowledge of Chemistry will enable him to determine the relative value of the raw materials offered by dealers, and to conduct intelligently operations based on chemical principles, detect imperfections in them and suggest improvements. The work of the course being mainly chemical, the graduate will be prepared to undertake analytical work of almost any kind, and should be valuable in a laboratory, whether for general analytical work or for special work.

The following is a brief description of the course, in which it will be observed that laboratory work is a prominent feature throughout:

1. General Chemistry. All Students.

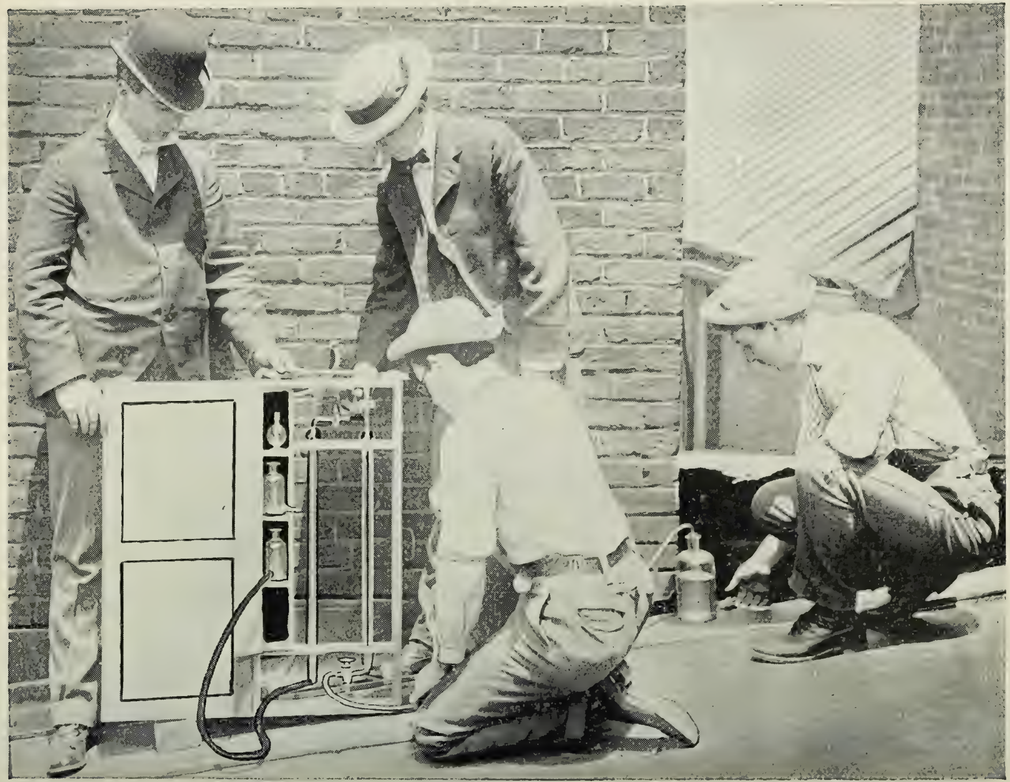
The work of General Chemistry extends through the Apprentice year, three hours per week being given to lectures and recitations, in which the subject under consideration is amply illustrated by experiments serving to make clear and impress the principles and facts of the lesson. The lecture course is accompanied by a laboratory course of two hours per week, in which the student becomes acquainted with chemical apparatus and manipulation, and is taught to observe chemical phenomena with care, and record them accurately in his note-book. Remsen's Introduction to the Study of Chemistry is used as the text-book.

1a. Inorganic Chemistry. Chemists.

One hour a week for two years. A more detailed study and discussion of the principles of Chemistry extending through Junior and Middle years.

2. Qualitative Analysis. Chemists.

This subject is studied throughout the Junior year, averaging eight hours per week in the laboratory. The student is given a large number of mixtures to analyze, and in the latter part of the



COLLECTING FLUE GASES FROM OUR SHOP STACK FOR ANALYSIS AND ECONOMY OF FUEL.

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course minerals and alloys, the proper determination of which necessitates the careful observation of many phenomena and the drawing of correct inferences from them, while at the same time his chemical knowledge is made permanent and accurate. Frequent quizzes and examinations are given to ensure that the work is being done intelligently and not by rote. Noyes' Qualitative Analysis is used as the guide, and Fresenius' Qualitative Analysis as reference.

2a. Qualitative Analysis. All students except Chemists.

This is a course of four hours per week, extending through the Junior year, similar to the course outlined above, though abbreviated to meet the demands of those students who do not expect to pursue the subject of Chemistry.

3. Quantitative Analysis. Chemists.

This course begins in the second term of the Junior year, and extends through the second term of the Senior year. It consists of general and applied Analytical Chemistry.

(a) General Methods.

This work is intended to give the student a thorough groundwork in analytical methods as a basis for the special work to be taken later, and broad enough to enable him to cope with new problems which he will necessarily meet in the pursuit of his profession.

(b) Applied Analytical Chemistry.

In this work commercial products will be selected for analysis, such as bleaching powder, soda, mordants, alloys, iron ores, slags and limestones.

Fuel Analysis. A complete and proximate analysis of coal, and the determination of its heating power by calorimeter. The bearing of these results on the value of the fuel will be dealt with in the lecture course.

Iron and Steel Analysis. The usual determinations made on iron and steel, and this, together with the analysis of iron ores and limestones, and the work of fuel testing, will equip the student for work in laboratories connected with blast furnaces and steel works.

Water Analysis. The determinations usually made to ascertain the fitness of water for use in boilers and dyeing, and for drinking purposes.

Fertilizer Analysis. The analysis of a complete fertilizer by the methods recommended by the Association of Official Agricultural Chemists.

Assaying. The assay of gold ores.

Gas Analysis. The analysis of several gaseous mixtures of common occurrence, such as illuminating gas, gases from sulphuric acid works, and flue gases. The lecture course will deal with the calculations from these analyses, and with discussions of the results in their relation to the economical management of the operations.

Oil Testing. The determination of the flash point of kerosene, the viscosity, flash point, gravity, cold test, etc., of lubricating oils.

3a. Quantitative Analysis. Textile Engineers.

This course, for Textile students only, is briefer than that above described, extending through the Senior year. It is intended to give the student such familiarity with analytical apparatus and methods that he may readily become proficient in testing the raw materials used in the textile industries, and to properly value such tests if made by others.

4. Organic Chemistry. Chemists and Textile Engineers.

This course extends through the Middle year, and consists of recitations and lectures, illustrated by numerous experiments. Remsen's Organic Chemistry is used as the text-book.

The laboratory course, extending through the Middle year, will familiarize the student with the apparatus used in organic work, and with such operations as fractional distillation and crystallization, steam distillation, saponification, nitration, sulphonation, diazotization, etc., operations conducted on a large scale in color works and other chemical industries. He will prepare a number of commercial products, such as nitro-benzene, aniline, phenol, and dyestuffs; and also will be required to make a satisfactory organic combustion.

5. Metallurgy. All students except Textile Engineers.

A brief course in the Metallurgy of Iron and Steel is given during the second and third terms of the Middle year. This course deals with the refractory materials used in furnace linings, the different types of furnaces, iron ores, the production of pig-iron, wrought iron and steel, and the fashioning of them into merchantable products. A short course of lectures is given on the effects of carbon, silicon, sulphur, phosphorus and manganese on iron, and the production, properties, and uses of "special" steels.

In connection with the above course a series of lectures on Fuels is given, which deal with the methods of determining the calorific power of fuels, pyrometry, the sources and production of the different fuels, natural and artificial, and their suitability for different uses.

6. Industrial Chemistry. Chemists.

This course, extending through the Senior year, will consist of lectures and recitations dealing with the preparation of various products from the raw materials, such as sulphuric acid, hydrochloric acid and sodium sulphate, soda, bleaching powder, fertilizers, lime and cement, glass, soap, illuminating gas, sugar, paper, oils, etc.

7. Physical Chemistry. Chemists.

This course extends through the Senior year, and will consist of lectures and laboratory work. It will deal with such subjects as the laws of gases, solution, vaporization, condensation, fusion and solidification, electrolytic dissociation, etc., and is of practical value in throwing light on separations and purifications brought about by such physical processes as evaporation, distillation, electrolysis, filtration, crystallization, etc., processes very common in chemical manufacture, and which require intelligent control in order to secure the best results.

9. Thesis.

In the latter part of the Senior year the student prepares a thesis requiring original work.

DEPARTMENT OF MECHANICAL ENGINEERING.

All instruction in this department is based on strictly utilitarian lines.

The graduate's commercial valuation, on leaving the technical school, is invariably based on his helpfulness—on what he can *do,* and not on what he *knows.* He must *know* things and how to *do* them, and not simply know *about* them.

It is felt that a student purposing to take a course in Mechanical Engineering must at once manifest marked aptitude in at least one of the three branches: He must have special taste for, and ability in, the understanding and solution of mechanical problems, which require a good knowledge of mathematics; or he must show great quickness of insight, accuracy, and value in the drawing-room; or he must show marked ability as a handicraftsman in the shops. To be a successful engineer, he must excel in all three of these branches. If he excels in none, the case is plain that he has mistaken his calling, or his parents are mistaken, and it is a waste of time and of their money for him to remain here, and he is early advised to seek education in some other field of effort.

The studies taught in this department comprise Kinematics and Mechanism, Machine-Design, Analytic Mechanics, Applied Mechanics, Materials used in Engineering Structures, Strength of Materials, Steam Engineering, Prime Movers, and laboratory experiments.

In Kinematics—the Geometry of Machinery, or Pure Mechanism—the geometric relations of the moving parts of machines are investigated. This includes the proper forms of teeth of Spur Gears, both Epicycloidal and Involute (and their approximations by the use of the various forms of Odontographs), Bevel Gears, and Worm Gearing. This study is supplemented in the drawing-room by a thorough course in drawing the various forms of teeth, and familiarity gained with the best modern shop practice in gear-cutting. Pure Mechanism also includes the study of various types of Epicyclic Trains, and a careful analysis of the velocity ratios of various parts of the steam-engine, with and without beams. This study will, in the near future, be illustrated by a set of excellent models, to be constructed in the school shops by the students.

The study of Machine-Design will be by text-book and lectures, and also by practical application in drawing. It will include the various parts of machine tools, the steam-engine, pumping machinery, electrical machines, riveted joints, and the proper forms for strength and efficiency of the various parts of other machines in common use. A very important adjunct to this course of instruction will be the study of a magnificent collection of blue-prints of details of a large variety of machinery, for which we gratefully acknowledge obligations to the Calumet & Hecla Mining Company, of Boston; to the Dickson Manufacturing Company, of Scranton, Pa., and others. This incomparable collection of prints will be augmented from time to time.

In Analytic and Applied Mechanics the various forces in statics and dynamics are studied, and a wide range of problems in their practical application to machines is solved. The subjects to which special attention is directed are the various forms and expressions for force; the composition and resolution of forces, and their application to cranes, derricks, etc.; determination of center of gravity; friction; the principle of virtual velocities, and its application to the steam-engine; laws for the transmission of force in the various mechanical powers (so-called); equilibrium and pressure of fluids; accelerated motion and its application in particular to the steam-engine reciprocating parts; eccentric and cam motions; the theory of impact, constrained motion and centrifugal force; moment of inertia, and its application to the fly-wheel, etc.; the actions of governors; kinetic and potential energy; the simple, compound, and ballistic pendulum, etc.

The materials used in engineering structures will principally embrace the mechanical properties and treatment of iron and steel, and the various forms of "ingot metal"—Bessemer and Open-Hearth in particular—various alloys, timber and cements.

The strength of materials will comprise a combined investigation in class-room and laboratory of the strength of engineering structures, such as beams, pillars, or columns, and girders; the tensile, torsional, and transverse strength of wood and metals, graphic analysis of stresses in various forms of trusses; bursting strength of boilers, etc.

Steam Engineering will include the science of Thermodynamics —the conversion of heat into work in the steam-engine; the attendant losses and means of partially preventing the same; elaborate series of investigations, combined with the practical use of steam-engine indicator; types of indicators; effect of cylinder condensation; losses due to clearance and compression, constructing theoretical cards for compound, "triple expansion," and "quadruple expansion" engines; various types of valve gears in commom use; steam-boilers, etc.

In addition to the course of Steam Engineering will be given a study of other prime movers, such as turbines, over-shot and reaction wheels, and a study of the best modern examples, as the "Hercules," "Victor," "Pelton," "Hurdygurdy," etc.

Laboratory practice has been largely indicated in what precedes. It involves the use of various engineering appliances, such as pyrometers, planimeters, gauges, test-pumps, dynamometers, etc. A well equipped experimental Mechanical Laboratory for carrying on this work is described later under heading, "Department of Experimental Engineering," which see.

There has been constructed in the school shops, from our own designs, a transverse-testing machine for making transverse tests on iron and wooden beams, of a more delicate character than can be made on our larger machines. This machine reads accurately by quarter-pounds up to two thousand pounds.

For class-room demonstration there are many models, such as link-motion, plain slide valve motion, section of model engines, pumps, etc.

MECHANICAL DRAWING.

Mechanical Drawing is pursued throughout the entire course of four years, it being considered that efficiency in the drafting-room is second only to proficiency in the shop.

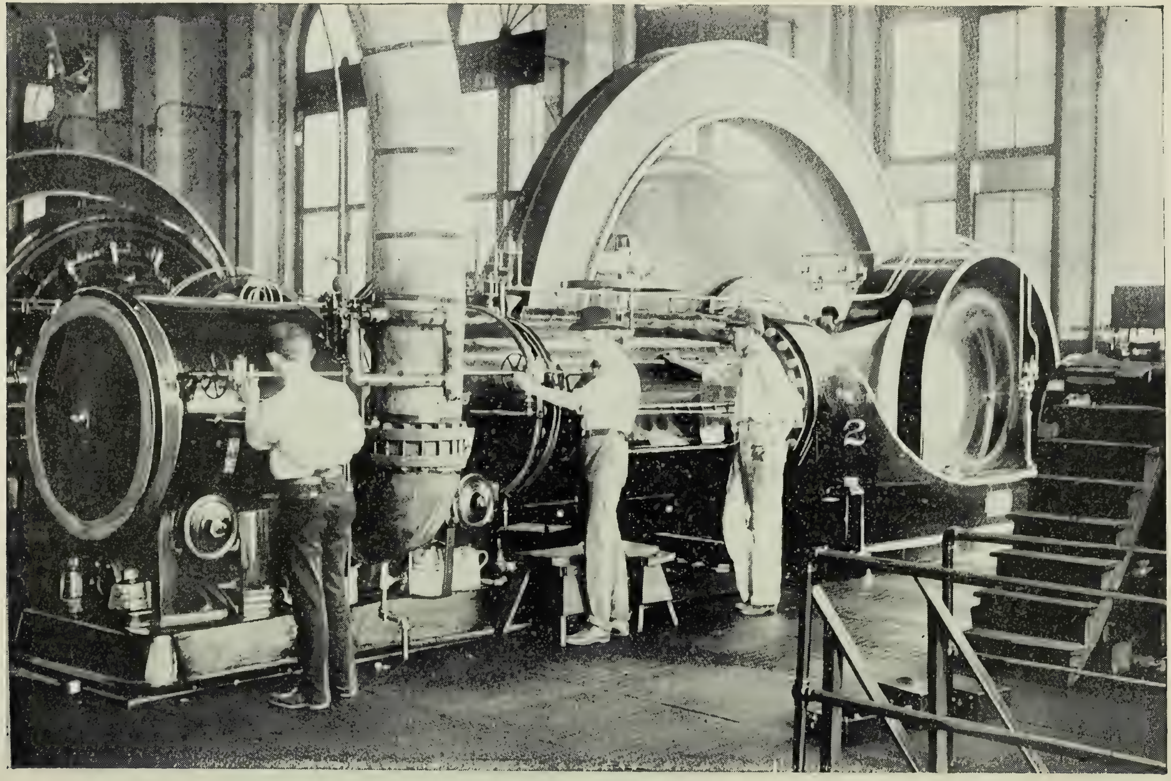
The beginning (Apprentice) class first takes up free-hand geometric drawing, which is taught by lectures and blackboard exercises. This is followed by free-hand elementary linear perspective, sketching from models, with shades and shadows, sketches both in perspective and orthographic projection, from patterns, castings, and parts of machines.

After three months' free-hand work the Apprentice class begins instrumental linear drawing, the construction of geometric problems, etc., followed by isometric, cabinet and orthographic projection, all drawings being made to scale. To assist in the theoretical study of drawing Descriptive Geometry in its application to orthographic, common oblique and perspective projection are studied for the remainder of the year.

Students are advised not to supply themselves with drawing-instruments before consulting the professor in charge. All necessary instruments of the best quality need not cost over $13.00.

The Junior year is devoted to drawing problems in every-day practice in all projections, careful consideration being made in the selection of the problems so that the student can apply directly those principles he has learned in his study of the theory of drawing, thus making the connection between theory and practice clear and profitable to the student.

The Middle year commences with the drawing of machine parts, as spur, screw, bevel and various types of gears, laying out



THESIS WORK. AT THE ELECTRIC LIGHT STATION, ATLANTA.

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of cams and motion diagrams, etc., etc., being followed by complete drawings of machines, making the assembly drawing and then the complete detail drawings.

During this year tracings from the pencil drawings and blueprints from the tracings are required of each student. Strict attention is given to the execution of all drawings, and the best modern Drawing-Room practice of the leading manufacturing establishments of the country is followed as closely as possible.

The drawing of the fourth (Senior) year is devoted to machine-design in detail, in which the methods obtaining in the best modern shop-practice are carefully incorporated with purely theoretical considerations. In all the advanced drawing, there is continual connection between the work done in the drafting-room and the instruction given in the class-room. At no time is any attempt made to procure pretty pictures which delight the artistic eye of the layman, but which are of no use to anybody, for any purpose. Such amateur work is always necessarily far inferior to, and immensely costlier than, the work of the photographic camera. All drawing, from first to last, is made accurately to scale, and working dimensions plainly given. In short, an effort is made to teach the student how to make correct, accurate, detail working-drawings.

Students entering the school as Juniors will be required to draw extra time two hours per week for two years, and hand in two copy-books of lettering.

WORKSHOP PRACTICE.

A distinctive feature of this school is the mechanical workshops, machine-shop, blacksmith-shop, foundry and wood-shop. Especial emphasis is placed on the importance of practical skill and experience to be gained in shop work of the highest class. Work done here is not merely manual training. Advanced students are invariably employed in all the different shops, on tools and apparatus to be put to some useful purpose when completed.

The shops where students practice occupy a commodious two-story building, 310 feet long by 40 feet wide, with wings 30x40 and 12x40. The building contains the general offices of the shops, drafting-room, iron and wood-rooms, engine and boiler-rooms, wash-rooms and foundry. All these rooms are well equipped with the best modern iron and wood-working machinery and tools.

The shops are no longer run on the contract system. No outside work of any kind is done. A general idea of the character of work carried out may be gathered from notices of machines, etc., now being manufactured in the shops, at the end of this article. All work done in the shops is from our own designs, from working-drawings prepared by the students under careful and experienced supervision. The work in all departments calls for the highest abilities of the student.

The first or Apprentice year is devoted entirely to wood-work. This includes a course of elementary instruction in laying out work with knife and pencil and the use of the ordinary hand tools, such as saws, planes, chisels, etc. This is followed by a course in elementary pattern-work, introducing the use of the turning lathe. After these elementary exercises the student works altogether upon practical work, which, for want of a better name, may be classed as cabinet work. It consists for the most part of equipment for the shops or school, such as cabinets, tables, drawing-boards, physical apparatus, etc.

Instruction and practice is given in the use and care of the wood-working machinery, large and small circular saws, band and scroll saws, cylinder and buzz-planers, boring, mortising, and tenoning-machines. Two days of eight hours each a week are devoted to shop practice throughout the Apprentice year. About two-thirds of this time is spent in the wood-working shop. As soon as the student has acquired sufficient skill in the use of wood-working tools to begin elementary pattern-work, he is at once sent to the foundry, where he is given thoroughly practical work in the elementary practice of moulding. This first work in foundry is given with the sole purpose of aiding the student to understand the conditions imposed by the foundry on the pattern-maker. Experience has shown that the progress of the student in pattern-making is much accelerated by this method; that many puzzling questions relating to draft, core-boxes, etc., are at once easily and quickly made clear to him in the foundry, which he can never, no matter how well instructed, fully comprehend anywhere else.

Simultaneously with the foundry instruction, the student is

THE QUANTITATIVE LABORATORY

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given work in pattern-making. The two processes so closely related are thus carried on together; and the work in the pattern-shop is not merely manual training school exercises. It is all work of a high class, carefully designed by an experienced practical engineer, every piece of which forms a part of some useful machine.

Throughout the remaining three years, each student devotes one day each week to the work in the shops. Students who are prepared to pass up the studies of the first year in the academic departments, and enter the school as Juniors, are required to work one-half day extra each week for three years.

The work in the second, third and fourth years (Junior, Middle and Senior) is divided between the four departments of the shop, viz.: pattern-making, foundry, smith-shop, and machine-shop. During these years more time is devoted to the machine-shop than to any other department.

The foundry, which is unlike most foundries, in being a bright, cheerful place, is thoroughly equipped, having, besides a main moulding-room with a floor area of 40x90 feet, a core-room, two ovens for baking cores, a Collieau cupola in a fireproof annex having iron charging-floor and iron roof, a separate building in which are placed the rumblers and the pickling vats, and another building for the brass foundry.

In the foundry the student is given careful and efficient instruction in green and dry sand moulding, core-making, mixtures of iron, brass-founding, and the mixtures of the various useful bronzes, aluminum-casting, and the aluminum bronzes. There is also a separate cupola for the reduction of "burnt-out" pure copper electric wire to pure pig lake copper.

The smith-shop occupies a separate new building, embodying the latest ideas in smith-shop construction. It is 37x70 feet with all four sides solid glass. It is equipped with twenty-one forges, with Peter Wright's best forged anvils, and blast pipes and smoke ducts under ground. Smoke is carried away by a powerful exhaust fan, on the down-draft system, leaving the overhead space entirely free for admission of light. In one end are the foreman's office and a room fitted up with benches and vises for bench-work in forging. The smoke-exhaust fan is located overhead in the foundry (in another building), and the system works admirably. A more efficient and cheerful blacksmith shop it would be difficult to imagine.

There will be installed in the smith-shop, during the coming year, three double emery wheel stands, now building in our own shops, for tool dressing, polishing, etc.

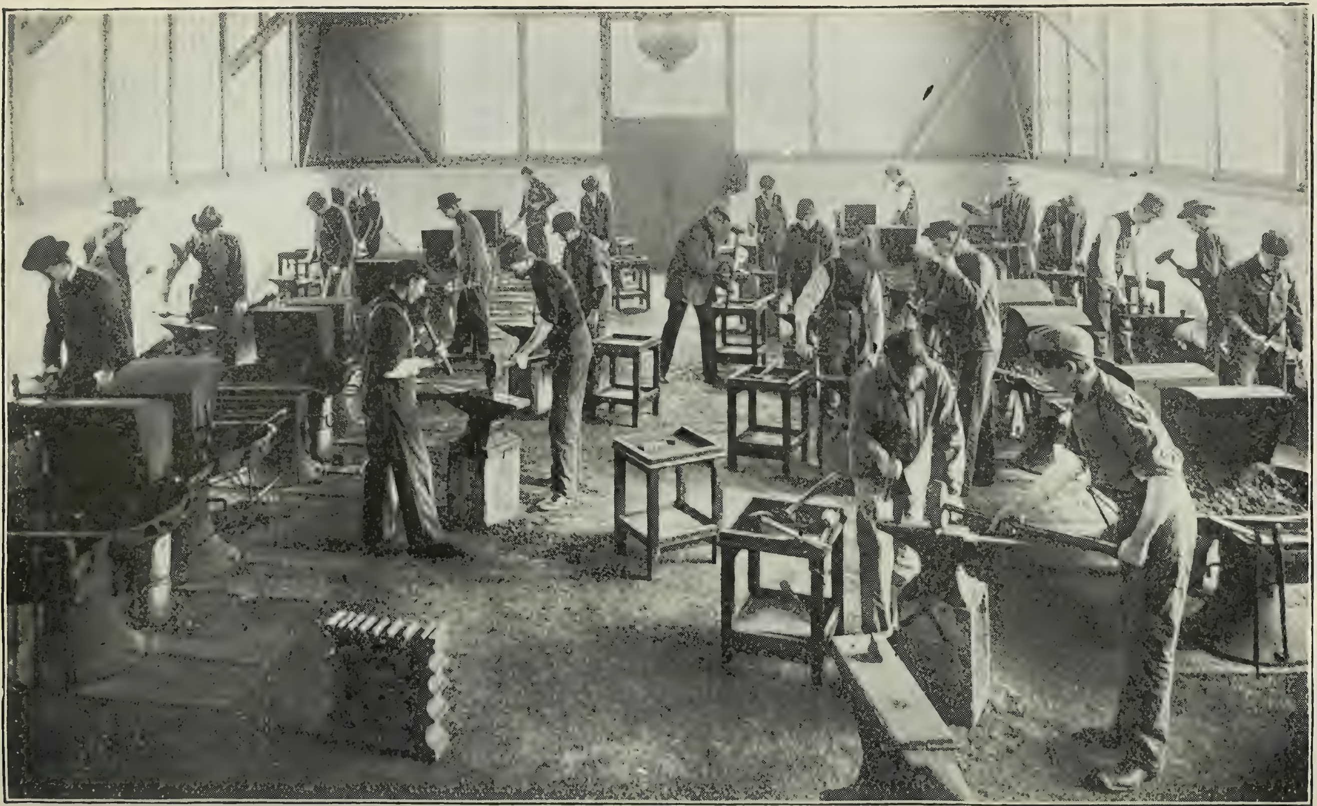
All the shops are lighted by electricity, both arc and incandescent.

In the smith-shop the student is first given purely manual-training tasks in iron-forging, which are continued only so far as will enable him to acquire sufficient skill to forge some useful article. After that his work is confined to such articles as possess intrinsic value. We received a silver medal at the Cotton States and International Exposition on our display of small tools made in the smithery, such as hammers, masons' and moulders' trowels and tools, turning chisels, gouges, cold-chisels, swages, spawls, etc. The student also acquires skill in forging and dressing lathe and planer tools; welding, tempering and annealing steel; the brazing and soldering of various metals, case-hardening, blueing, etc. It is to be distinctly understood that the student does not simply observe these operations as they are performed by a skilled artisan, but is required to acquire the handicraft himself, under expert instruction.

The machine-shop is well equipped with lathes (two of which are very large ones), planers, grinding tools, universal milling-machine with spiral attachment, shaping-machine, and a large assortment of small tools in a tool-room conducted strictly on the check-system. To this equipment we are constantly adding tools of our own manufacture, having added a 20-inch by 6-foot iron planer of our own design (upon which we received a silver medal at the Cotton States and International Exposition).

Beginners in this department of the shops are first given instruction in chipping and filing. The elementary tasks are of the usual manual training-school order, the first lesson being to chip and file a rough cast-iron block into a cube, with flat faces, sharp corners and right angles. Only a few lessons of this character are given, as it is felt that here, as elsewhere, the sooner the student can be put upon productive industry the better. It can not be successfully denied that a student takes more interest in work of a useful character than he does in a mere task. He can be better taught to turn and grind round fits, scrape true, flat surfaces, and cut flutes and spirals in useful articles, parts of machine tools, for instance, than in manual training tasks to be cast into the scrap-heap.

Where the head of a department prefers, students in a course



IN THE SMITH SHOP. 21 DOWN-DRAFT FORGES.

under control of that department will be confined to manual training tasks in the machine shop.

All work of whatever kind in all departments (excepting, of course, the foundry) is done to working-drawings. No haphazard, no chance, no "beginning at nothing and ending nowhere," is allowed. Under certain conditions students are allowed to work in the shop extra time on things for themselves. Work of this character must meet the approval of the head instructor; must be made to a working-drawing or a carefully-prepared dimensioned sketch, and must be of a character to reflect credit on the student and possess intrinsic value. As work of this character may be mentioned small steam-engines, electric generators, motors, etc.

Students are also instructed in the practical management of the shop steam-engines, boilers, firing, etc.

The following partial list may give some idea of the character and scope of the work done by the students in our shops. Some of this work is now in process of construction.

For the Swann Dormitory, sixty-five iron beds, thirty-five oak washstands, sixty oak tables, fifty oak bureaus. Besides this a large amount of furniture for other departments of the school and also much that students have made for themselves and taken to their homes.

Twenty hand looms for the Textile Department, besides a large amount of repair work. Over one hundred iron drawing tables, and hundreds of drawing boards, for the Department of Drawing.

A large number of tools in the smith-shop, such as moulders' tools, drawing-knives, carving knives by the hundred, turning chisels and turning tools for ourselves.

A fifty-horse power engine, now driving our shops, made by ourselves entire, including drawings, patterns, castings and forgings.

Four double emery wheel stands.

Four 20-inch by 6-foot iron planers.

A 24-inch buzz planer.

A 12-inch buzz planer.

A power geared pump for pumping all the water of condensation of our heating plant back to boilers, boiling hot.

Ten wood speed lathes.

Many electric generators, the largest a 10 K. W. for ourselves.

Many small steam-engines by students for themselves.

Students who fail to maintain their academic standing, also young men who lack the means to take the full four-years' course may, by approval of the faculty, take a course in manual training. This course comprises at least one lesson per day in pure mathematics, and the remaining time (forty-four hours per week) devoted to drawing and shop work. Students are not admitted to this course unless they have passed entrance examinations to the Apprentice Class. Students taking this manual training course will not be allowed to work in the machine shop unless they have been at least two years in attendance at this school, or unless they are over twenty-one years of age.

DEPARTMENT OF ENGLISH.

The course in English embraces four years. As the school has no separate departments of History and Economics, branches of these departments are included in the English course.

Recognizing that conventional instruction in English is largely theoretical, and consequently is inefficient, the objects of this course are practical.

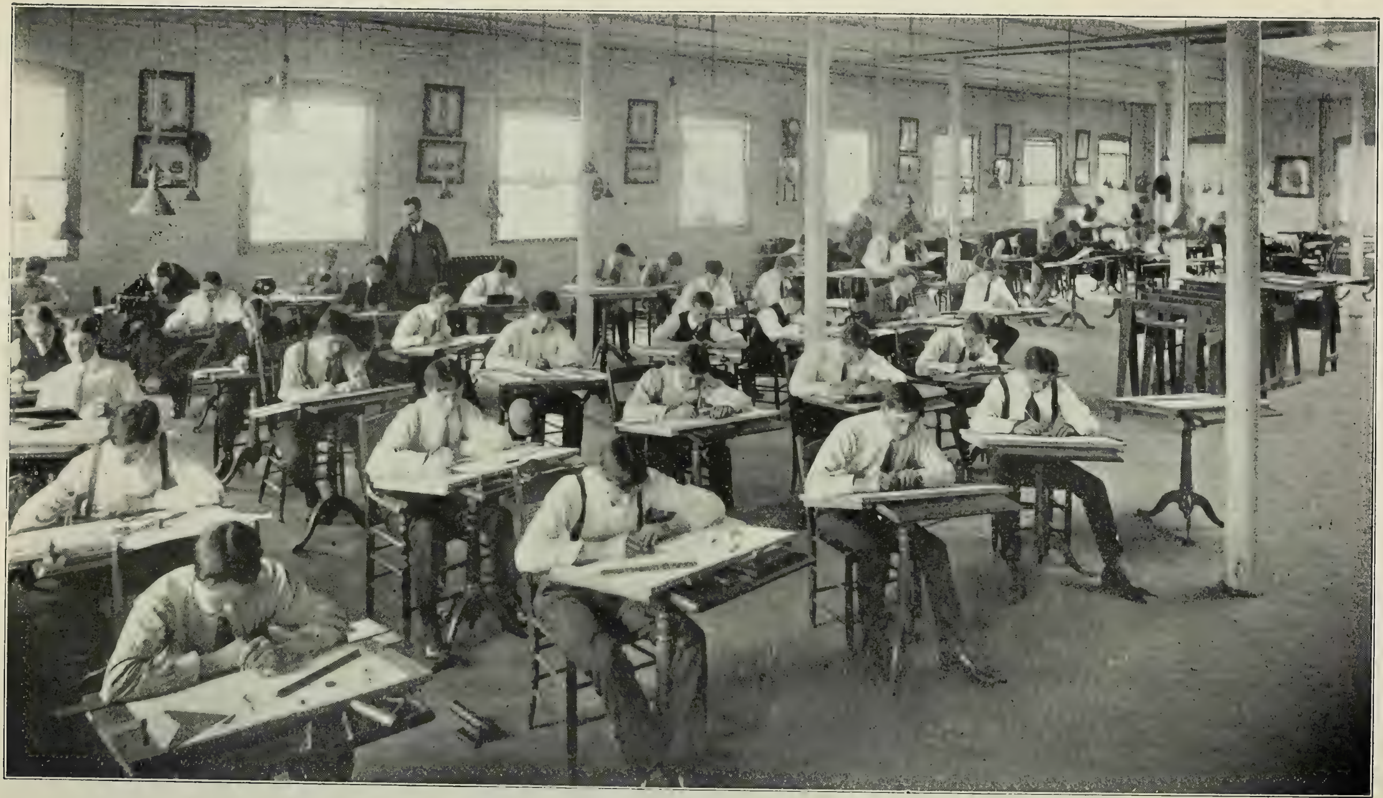
The aim is to train the student in the best methods of expression, to cultivate in him true literary taste and appreciation, and to give him an adequate knowledge of the history of English language and literature.

The course is supplemented throughout by frequent lectures on the part of the Professor and his associates.

Accessory to the department is a library of some 2,500 volumes, recently acquired.

Apprentice Class.

The class recites four hours a week throughout the school year. For admission to this class the following requirements apply: (a) A comprehensive knowledge of English Grammar; (b) a liberal and literary knowledge of the following texts, prescribed as College Entrance Requirements in English: Southern Poets, Lady of the Lake, Silas Marner, Rip Van Winkle, and the Legend of Sleepy Hollow.



THE DRAWING ROOM FOR APPRENTICE, JUNIOR AND MIDDLE CLASSES.

School editions of above classics may be obtained from any of the publishers of school texts.

During the first and second terms Outlines of Rhetoric is studied. Emphasis is laid upon theme writing, and constant exercise in this fundamental work is required under the careful supervision of the instructors. The Harvard system of teaching Freshman English is employed.

The third term is given to a course in general history. Themes are continued, special attention being given to argumentative writing.

Frequent declamations are required throughout the year.

Junior Class.

The recitations are as follows: Five hours per week the first term; four hours per week the second, and three hours per week the third term.

The three terms of this class are devoted to an introductory study of English Literature. In this connection the student is required to master Rhetorical methods and principles, and thus form for himself a valuable apparatus of investigation and criticism. Parallel reading courses are assigned, upon which written reports and criticisms are required. Essays, and either declamations or debates are required at frequent intervals throughout the year.

Middle Class.

Recitations three hours per week throughout the year.

During the first and second terms, the class studies Economics.

The third term is spent in the study of American Literature. Parallel reading courses are assigned, upon which written reports and criticisms are required.

Frequent essays, with occasional debates, are required throughout the year.

Senior Class.

Recitations two hours per week.

The Senior year is devoted to as comprehensive a survey as possible of the historical development of the English language and literature, and to a critical study of Shakespeare, Milton, Tennyson, Robert Browning, and other literary masters, the list of authors being varied from year to year. Essays and debates are required on stated occasions.

DEPARTMENT OF ELECTRICAL ENGINEERING.

The aim of this department is to give the student such a training that he will be able to enter any part of the field of electrical engineering. A knowledge of certain fundamental subjects is necessary for all engineers; consequently the courses for mechanical, civil and electrical engineers are alike for the first two years, and have many subjects in common throughout.

The department occupies the second floor of the Electrical Building and a part of the shop.

The Power Plant is located in the shop and consists of an Atlas engine belted to a 17 1-2 K. W. 110-volt Triumph generator and a 9-light Thomson-Houston are light generator; with a 6.6 K. W. 110-volt General Electric generator belted from the shop line shaft. These machines are used to furnish current for lighting the various buildings and power for the Electrical Laboratory.

The Electrical Laboratory is located on the second floor of the Electrical Building, and contains the following machines, most of which are connected together in pairs so that either may be used as generator or motor at will: A 10 K. W. double current generator, built in the school shops, capable of supplying either direct, two-phase or three-phase currents; a 5 K. W. 110-volt shunt generator built in the school shops; a 5 H. P. 110-volt Commercial series motor; a 5 K. W. 110-volt three-phase Ideal alternator; a 5 H. P. 110-volt three-phase General Electric induction motor; two 6 K. W. 125-volt Edison compound generators; a 5.6 K. W. 125-volt Westinghouse motor generator set; a 10 H. P. 110-volt Stow motor; two 3 K. W. transformers arranged for phase transformation; several 1.5 K. W. transformers; a 11 M. F. adjustable condenser, and the necessary instruments for the complete testing of the above machines.

IN THE WOOD SHOP.

The donations received by the department during the past year are:

High tension line insulators, The Locke Insulator Manufacturing Co.

High tension line insulators, The R. Thomas & Sons Co.

Storage battery plates, The Electric Storage Battery Co.

Photographs, The General Electric Co.

Photographs, The Mechanical Appliance Co.

1. DYNAMO ELECTRIC MACHINERY.

1. Direct Current Machinery.—A study of the theory, construction and operation of the various types of direct current machines. Five hours per week during the third term for Electrical Engineering Middlers.

2. Alternating Current Machinery.—A study of the theory of alternating currents and the theory, construction and operation of various types of alternating current machines. Five hours per week during the first and second terms for Electrical Engineering Seniors.

3. Electrical Laboratory.—An experimental study of the apparatus discussed in Courses 1 and 2. The student makes tests of various machines in order to learn their characteristics and operation, and the use of electrical instruments. Three hours per week throughout the year for Electrical Engineering Seniors.

4. Electrical Design.—A study of the design of various types of apparatus. Each student is required to make a complete design of one or more machines. Six hours per week during the second and third terms for Electrical Engineering Seniors.

2. ELECTRO-CHEMISTRY.

5. Applied Electro-Chemistry.—A study of the principles of electro-chemistry and their application to the operation of electric batteries and various electro-chemical processes. Three hours per week during the second term for Electrical Engineering Seniors.

3. ELECTRICAL INSTALLATIONS.

6. Telephone and Telegraph.—A study of the various telephone and telegraph systems now in use. Two hours per week during the first term for Electrical Engineering Seniors.

7. Electric Power Plants.—A study of the design and operation of plants for the generation, transmission and distribution of power by electricity, particular attention being paid to the question of cost. Five hours per week during the third term for Electrical Engineering Seniors.

8. Elements of Electric Power Distribution.—A study of the elements of dynamo electric machinery and electric distribution of power. Three hours per week in the class-room, and three hours per week in the laboratory during the first term for Mechanical Engineering Seniors. Two hours per week in the class-room during the third term for Civil and Textile Engineering Seniors and Engineering Chemistry Seniors.

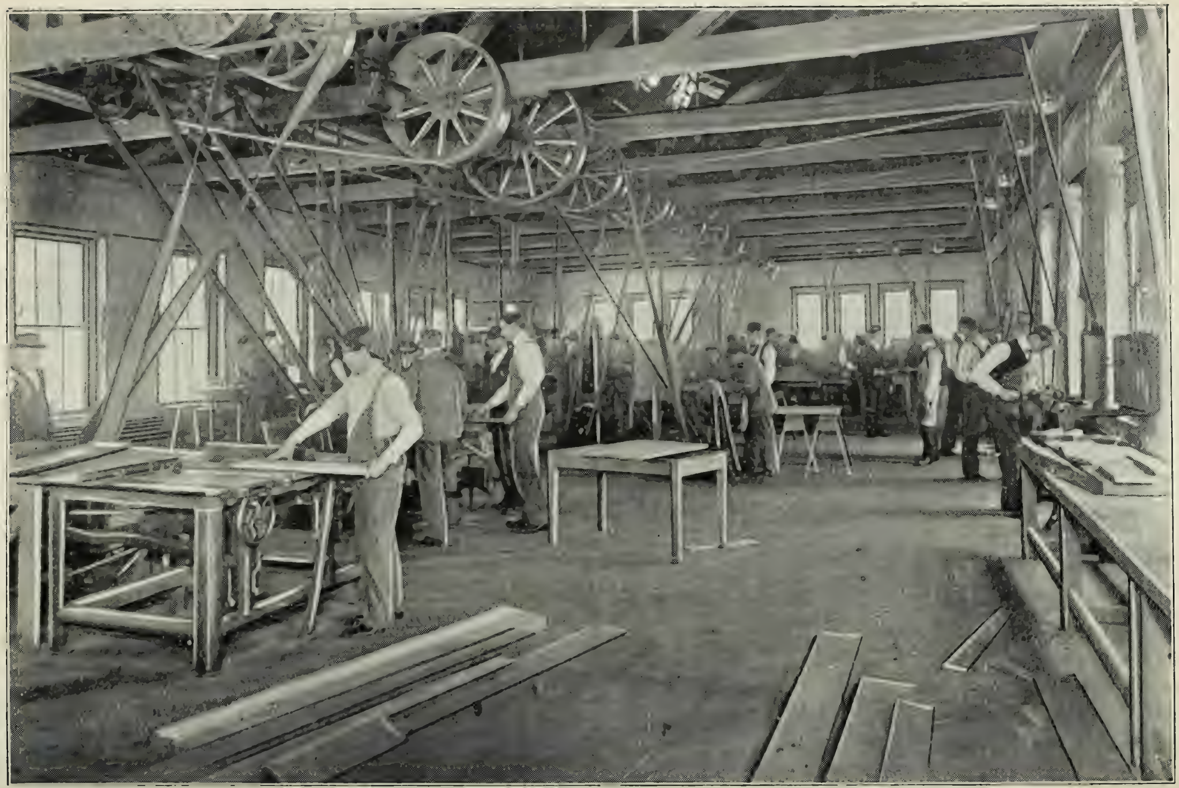
9. Thesis.—The purpose of the thesis is to develop the power to carry out independent investigation; therefore, the subject chosen should be one in which the student takes an interest, and should be within his ability to complete in a satisfactory manner. The subject should be chosen early in the second term, so that the literature on the subject may be looked up before the beginning of the third term, when the experimental work, if any, should be commenced.

DEPARTMENT OF CIVIL ENGINEERING.

In this department theory and practice are combined in the best possible manner, the class-room theory being put to immediate practice in the field or drawing-room. The student is thus taught to do his work thoroughly and intelligently, and the misty points are found and cleared away.

In the field, and under the direction of an instructor, types of work are performed and, later, the student is sent to do similar work by himself; all the work is carefully worked out and checked in the computing-room. The problems are those of actual practice, and all work is done thoroughly and accurately, carelessness resulting in students doing the work over during time he would otherwise have to himself.

The course in Dynamo Machinery renders the student familiar with the structure and workings of electrical machines, and enables him to select intelligently the machine for the work he has in hand.



MACHINE WORK IN WOOD SHOP.

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The course in Steam-Engine is designed to familiarize the student with types of boilers, engines and pumps, to decide upon the one to be used and to test its efficiency.

In Hydraulics and Hydraulic Machinery he is given a thorough training in the principles of the subject and their application to the designs of motors and water-wheels.

We have for this work four Y-levels, one engineers' transit, with Shattuck's Patent solar attachment, one engineers' transit with Saegmuller solar attachment, one plane-table, with telescopic alidale arranged for stadia, one complete compass, one aneroid barometer, one Thatcher slide rule, one sextant, one planimeter, pedometers, chains, tapes, rods, etc.

A constant effort is made to make the problems and their treatment, both in the field and office, conform to the best modern practice, and thus to make the student valuable to his employer at the earliest possible moment.

We have some valuable designs of existing structures, and this collection is constantly being added to.

The studies of this department are:

I. *Surveying.*—1. Structure, theory and use of field and office instruments, with practical application of these to surveys, location of meridian, leveling, railroad curves, staking out work, and computation of quantities.

2. The location, construction and maintenance of roads, railroads, street pavements and canals.

3. Topographical and Geodetic Surveying, with the application of plane-table and stadia.

II. *Mechanics.*—1. Elementary mechanics, theoretical and applied.

2. Analytic Mechanics.

3. Hydraulics. The principles of statics and dynamics of fluids, the flow of water through conduits, pipes, weirs, and orifices, and the determination of horse-power.

III. *Graphical Statics.*—1. Mechanical drawing.

2. Descriptive geometry and shades, shadows and perspective, together with stereotomy, and their applications to engineering problems.

3. Graphic solutions of Mechanical problems.

IV. *Engineering.*—1. Masonry structures; foundations for masonry, designing retaining walls, arches, dams, etc.

2. Framed structures. Designing roof-trusses, bridges, build-

ings, water-towers, tanks, etc.; special attention is paid to iron and steel in construction.

3. Strength of materials and materials of engineering.
4. Municipal engineering, water-works, sewerage, drainage, streets and pavements.
5. Steam-engine and boilers.
6. Electrical machines.
7. Hydraulic machinery.

TEXTILE DEPARTMENT.

THE A. FRENCH TEXTILE SCHOOL.

This department offers unexcelled advantages to the young man who intends to enter the textile industry. We believe that the student, on graduating, should have a sound foundation in engineering subjects as well as in the branches relating directly to the textile trade.

We therefore include, besides the usual subjects given in textile school, such as carding, spinning, weaving, designing, and dyeing, extensive courses in mathematics, English, chemistry, physics, mechanism, mechanics, drawing, strength of materials, steam-engine, electrical work, mill construction and shop work.

The course not only covers all the theoretical sides of the different subjects, but is extremely practical. For example, with a few exceptions where very fine or fancy yarns are required, we make and dye all the yarn used in the weave-room. This yarn and the cloth produced must be up to mill standards, as it is placed on the market and sold. We believe that no other textile school is run on such a practical basis.

During the third term the Senior Class is usually taken on a week's trip to some manufacturing centre where the different systems used in the mill and power plants are thoroughly studied.

BUILDING AND EQUIPMENT.

The Textile Building is a splendid example of architectural skill in modern mill construction. It is equipped with complete

IN THE VISE ROOM OF THE SMITH SHOP.

THE
JOHN CRERAR
LIBRARY

systems of heating, ventilating, electric lighting, humidifiers, automatic sprinklers, and, in fact, all apparatus and appliances found in the modern mill.

Great care has been exercised in selecting the equipment, which is the most complete in the world for education in the different branches of cotton manufacture. Several makes of each kind of machine have been installed, thus enabling the student to become familiar with most of the prominent makes now in use.

The equipment consists of:—

The Sturtevant system of heating and ventilating, made by B. F. Sturtevant & Co., Boston, Mass.

Complete equipment of automatic fire-sprinklers, from the General Fire Extinguisher Co., Providence, R. I.

System of humidifiers, from the American Moistening Co., Boston, Mass.

Entire equipment of shafting, hangers and pulleys, from Jones & Laughlin, Pittsburg, Pa.

CARDING DEPARTMENT.

Ginning.

One Winship Cotton Gin Feeder.
One Winship 60-saw Cotton Gin.
One Winship Condenser.

Pickers.

One Kitson Automatic Feeder.
One Kitson Single Beater Combination Breaker and Finisher Lapper, with Clarke & Perham's evener.
One Atherton 40″ Single Beater Finisher Picker complete.
One lap scale.

Cards.

One Saco-Pettee 40″ Revolving Flat Card.
One Whitin 40″ Revolving Flat Card.
One Howard & Bullough 40″ Revolving Flat Card.
One Lowell 40″ Revolving Flat Card.
Grinding, Stripping and Burnishing Rolls—Complete set Carder's Tools.

Combing.

One Dobson & Barlow Sliver Lap Machine.
One Whitin Sliver Lap Machine.
One Whitin Ribbon Lap Machine.

One Whitin Combing Machine.
One Dobson & Barlow Combing Machine.
One percentage scale for comber.

Railway.

One Saco-Pettee Railway Head, with evening motion and metallic rolls.

Drawing.

One Saco-Pettee Drawing Frame, 4 deliveries, and metallic rolls.
One Whitin Drawing Frame, 4 deliveries, and metallic rolls.
One Sliver scale.

Fly Frames.

One Woonsocket Machine and Press Co.'s Slubber, 32 spindles, with Daly's improved differential motion.
One Woonsocket Machine and Press Co.'s Intermediate, 42 Spindles, with Daly's improved differential motion.
One Saco-Pettee Machine Co.'s Intermediate, 44 spindles.
One Saco-Pettee Machine Co.'s Fine Roving Frame, 72 spindles.
One Woonsocket Machine and Press Co.'s Fine Roving Frame, 64 spindles, with Daly's improved differential motion.
One Providence Machine Co.'s Fine Roving Frame, 64 spindles.
One Saco-Pettee Machine Co.'s Jack Frame, 96 spindles.
One Roving Reel and Scale.
Two Laminar Fibre Co.'s Roving Trucks.

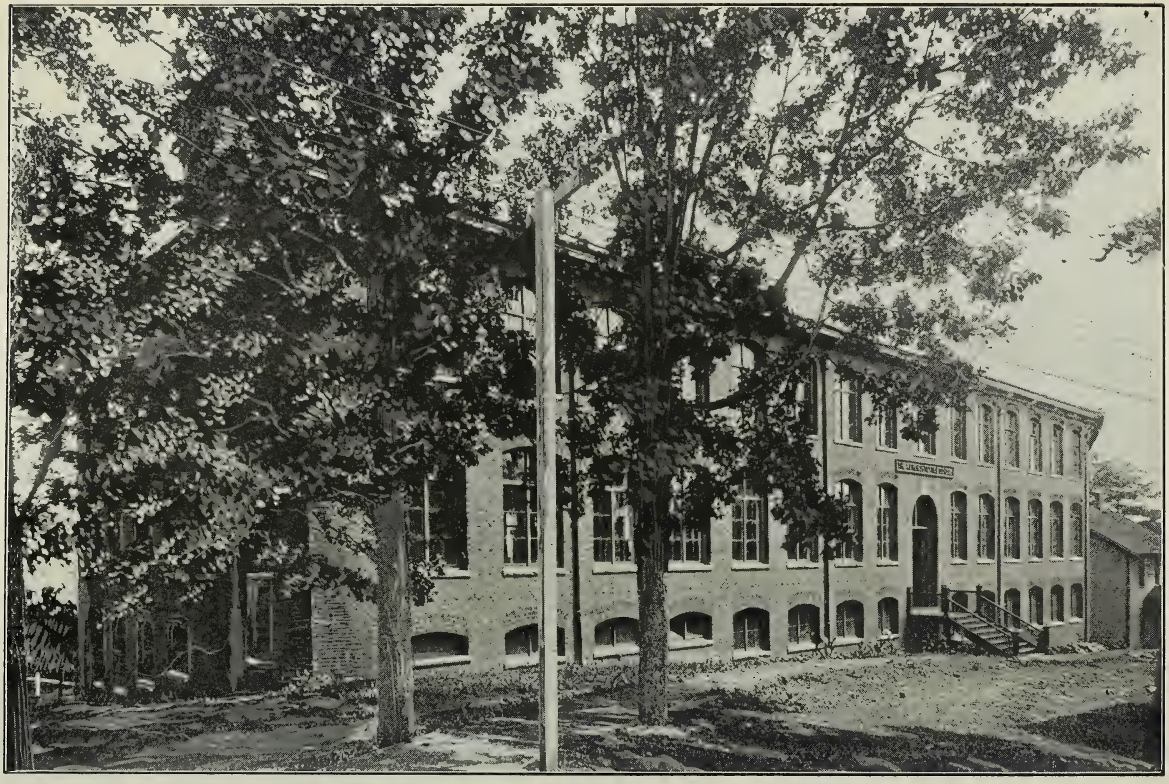
SPINNING DEPARTMENT.

Ring Spinning.

One Fales & Jenks combined warp and filling Frame, 80 spindles.
One Fales & Jenks filling frame, 80 spindles.
One Whitin combined warp and filling frame, 64 spindles.
One Saco-Pettee Machine Co.'s combined warp and filling frame, 160 spindles.
One Howard & Bullough combined warp and filling frame, 160 spindles.

Mule Spinning.

One Mason Spinning Mule, 360 spindles, 1 1-2" gauge.



THE A. FRENCH TEXTILE SCHOOL.

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One Yarn Balance and Reel.
One Yarn Testing Machine for Stretch and Strength.

Twisting.

One Draper Twister, 128 spindles.
One Draper Twister, 32 spindles.
One Fales & Jenks combined warp and filling frame, 80 spindles.
One Howard & Bullough Twister, 128 spindles.
One Twist Counter.
One Weeks banding machine.

Spooling.

One Easton and Bernham Spooler, 24 spindles.
One Draper Spooler, 40 spindles.
One Whitin Spooler, 60 spindles.
Two Barber and Colman Knotters.
One Fairmount Drum Spooler.

Winding and Reeling.

Two Universal Winding Machines, 7 spindles.
One Fairmount Bobbin Winder, 12 spindles.
One D. A. Tompkins Co.'s adjustable reel, 50 spindles.

WEAVING DEPARTMENT.

Warping.

One Entwistle Beam Warper with creel.
One Entwistle Beaming Machine, with tension drums.
One Draper Beam Warper with creel.
One Draper Ball Warper with creel.
One Cole Bros. Beaming Machine.

Slashing.

One Lowell Cylinder Slasher, 6 beam creel.
One Lowell Size Kettle.
One Lowell Size Pump.

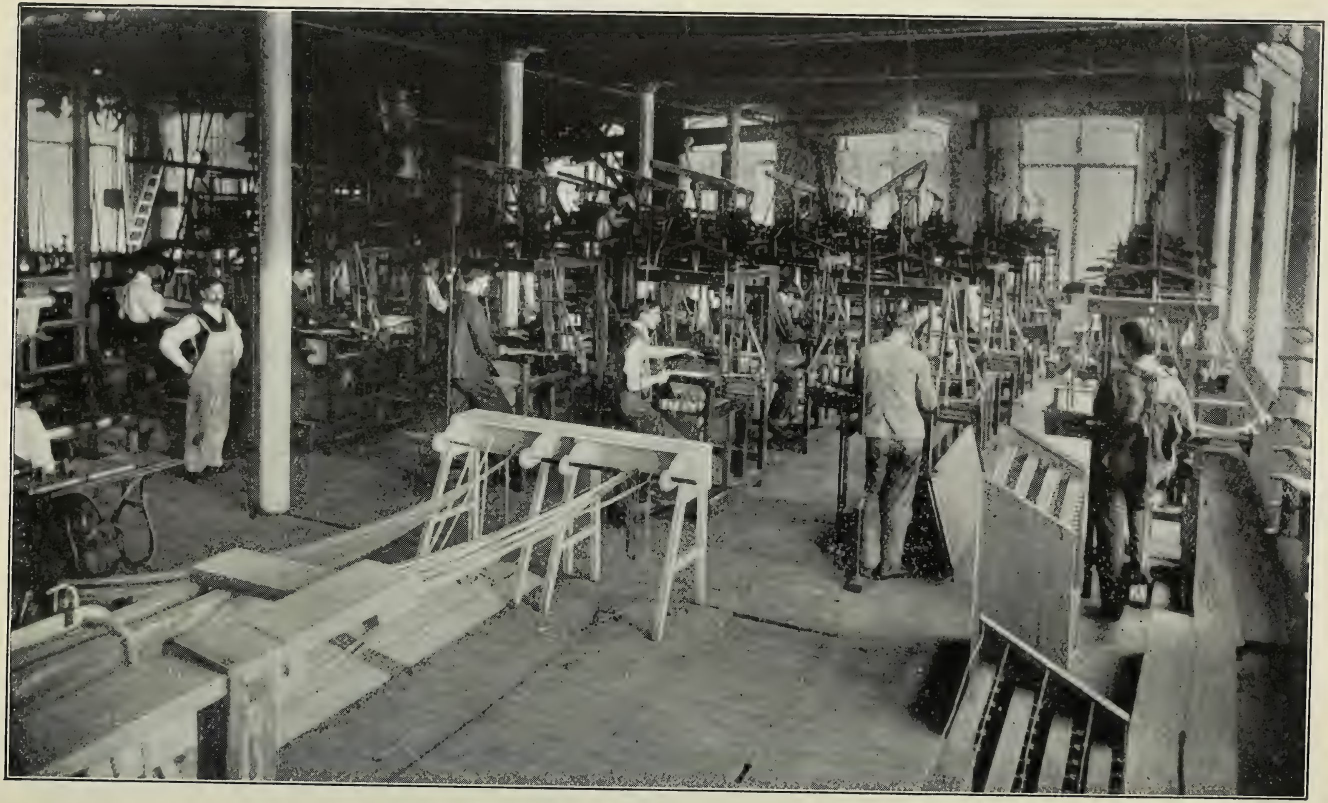
Hand Looms.

Hand Weaving Room, with thorough equipment of hand bobbin winders, warping pins, hecks, drawing-in-frames, and 30 hand looms with 30 harness dobbies, 4 shuttles, 4 beams, let-off and take-up motion, etc.

Power Looms.

One 36″ Colvin Plain Loom.
One Northrop-Draper Print Cloth Automatic Loom.

One Northrop-Draper 5 Harness Automatic Loom.
Two Northrop-Draper 36″ Sheeting Looms, Automatic.
One Lewiston Machine Co.'s Pillow-case Tubing Loom, with attachment for weaving plain goods.
One Lewiston Machine Co.'s 36″ Plain Loom.
One Whitin Plain Loom.
One Mason Plain Loom.
One Lowell Print Cloth Loom.
One Stafford 36″ Sheeting Loom.
Two Kilburn-Lincoln Plain Looms.
One Mutual Machine Co.'s Turkish Towel Loom.
One Kilburn & Lincoln Gingham Loom, 2x2 box, and 2, 3 and 4 leaf under cams.
One Mason 32″ Gingham Loom, 4x1 box, and 2, 3 and 4 leaf under cams.
One Crompton Gingham Loom, 6x1 box, and 2, 3, and 4 leaf under cams.
One Mason Dobby Dress Goods Loom, single box, and 20 harness for 2 and 3 beam work.
One Crompton Dobby Dress Goods Loom, 4x1 box, and 20 harness for 2 and 3 beam work.
One Knowles Cotton Dobby Loom, single shuttle and 20 harness for 2 and 3 beam work.
One Knowles Leno Loom, 4x1 box, multiplier, easing rods, 25 harness, double cylinder, for 2 and 3 beam work.
One Crompton Dobby Loom, 4x1 box, multiplier, 25 harness, double cylinder, for 2 and 3 beam work.
One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, left hand for 2 and 3 beam work.
One Knowles "Gem" Loom, 4x4 box, multiplier, 20 harness, right hand for 2 and 3 beam work.
Two Draper Dobby Looms, with magazines.
One Crompton-Thayer Dobby Loom.
One Fairmount Dobby Loom, 4x1 box, 16 harness, for 2 beam work.
One Fairmount "Ingraham" Harness Motion and Loom, 4x1 box, multiplier, 20 harness, for 2 beam work.
One Crompton-Knowles Upholstery Loom, with 600 hook, double lift, single cylinder, Jacquard machine.
One Crompton-Knowles Upholstery Loom, with 400 hook, single lift, single cylinder, Jacquard machine.



PRACTICE ON HAND LOOMS,

One Kilburn and Lincoln Dress Goods Loom, with 400 hook, rise and fall, rotary cylinder, Schaum & Uhlinger, Jacquard machine.
One Kilburn-Lincoln Hammock Loom, with 200 hook, single lift, single cylinder, Jacquard machine.
One 11-4 Lewiston Quilt Loom, 2x1 box, with 1,200 hook, double lift, single cylinder, Halton Jacquard machine.
One Crompton Damask Loom, 4x1 box, with 600 hook, double lift, double cylinder, Halton Jacquard machine.
One French Index Royle's Power Card Cutter.
One French Index Royle's Foot Card Cutter.
One French Index Schaum & Uhlinger Card Cutter.
One Royle's Card Lacing Frame.

Finishing.

One Curtis & Marble Railway Sewing Machine.
One Curtis & Marble Brushing and Calendering Machine.
One Textile Finishing Machine Co.'s Cloth Drying Machine.
One Elliott & Hall 40" Cloth Folder.
One Windle Doubling and Winding Machine, with Measuring attachment.
One Parks & Woolson French Napper.
One American Napping Machine Co.'s French Napper.

KNITTING DEPARTMENT.

One Branson 7-8 Automatic Knitting Machine.
One Scott & Williams Single-lever Automatic Shirt Body Machine.
One Scott & Williams Tucking Sleever.
One Scott & Williams Automatic Welter.

DYEING DEPARTMENT.

One Dry Room.
Two Dye Vats, 2x3 feet, regulation depth.
One Bleaching Box and Souring Vat and Pump.
One Buttersworth Steam Cylinder, for steaming yarns and cloth.
One Complete set Thos. Phillips Copper Measures.
One Thos. Phillips Patcher Steamer.
One Granger Jigg Dyeing Machine.
One Schaum & Uhlinger Self-balancing Engine-driven Hydro-Extractor.

One Ventilating Wheel.
One Klauder-Weldon Raw Stock Dyeing Machine.
One Klauder-Weldon Skein Yarn Dyeing Machine.
One Textile Finishing Machinery Co.'s Chain Warp Dyeing Machine.
One Draper Winding-On Machine.
One Draper Winding-Off Machine.
One Textile Finishing Machinery Co.'s Chain Warp and Cloth Drying Machine.

The Dyeing Laboratory is fitted up complete for experimental dyeing, analysis, etc. Students have access to our splendid collection of dyestuffs, which is, we believe, the most complete in the United States.

Fire Protection.

One Fales and Jenks Iron Rotary Fire Pump.
Complete system of automatic fire-sprinklers.
Fire pails.

Humidifiers.

Complete system of "Drosophore" and "Vortex" Humidifiers and Pump, with connections, donated by the American Moistening Co.

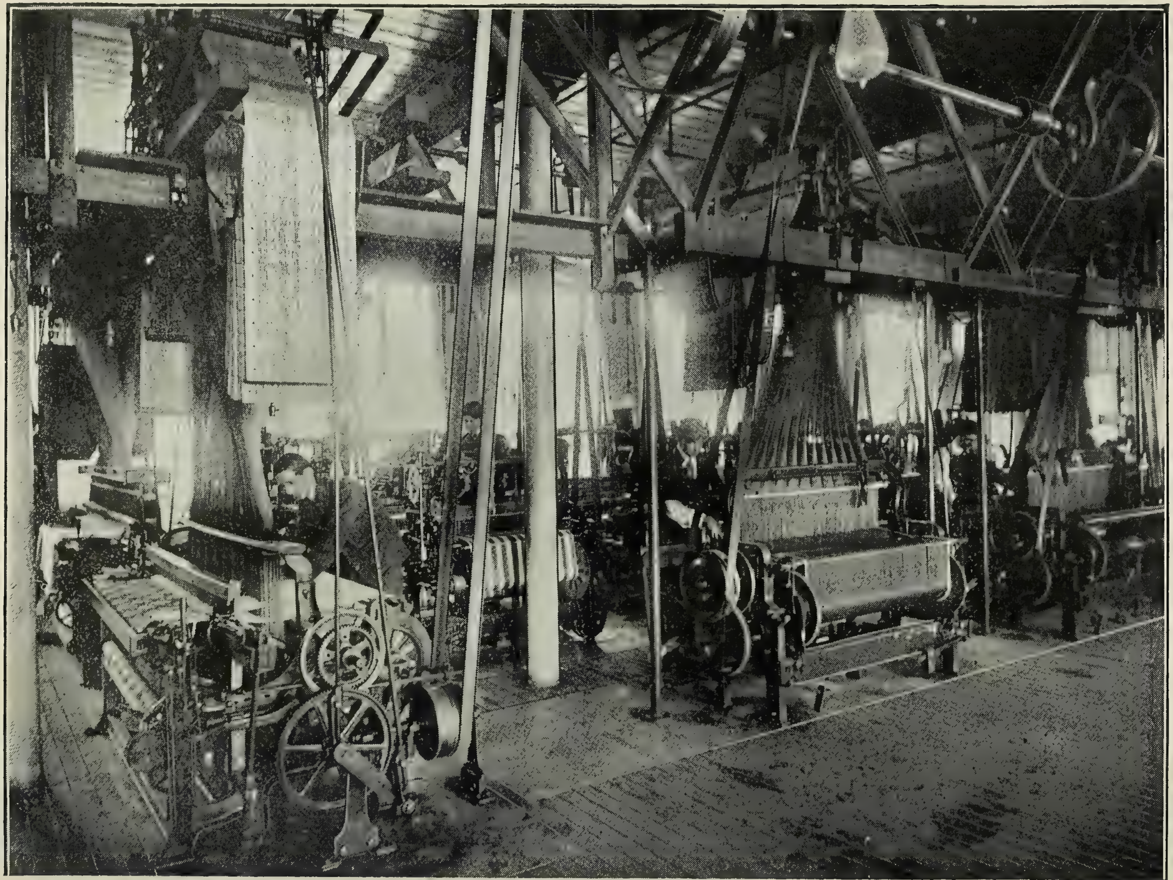
Power.

One Hundred H. P. Boiler, donated by Thayer & Co.
One 60-H. P. Corliss Engine, from the Lane & Bodley Co.
Shafting, Hangers and Pulleys, donated by Jones & Laughlin.

DEPARTMENT OF TEXTILE DESIGN.

FABRIC STRUCTURE.

The study of the above subject includes fundamental principles of the structure of fabrics; classification of fabrics; "balance of cloth" necessary to give the maximum of wearing qualities and best general appearance; economical construction; texture calculations; for "solid" weaves; for "combination" weaves; take-up in weaving; its relation to the different combinations of textures and weaves; examples of weaves which take up warp and filling at different rates; influence of twists on the appearance of the fabric; influence of the texture on the appearance of the weave



THE JACQUARD LOOMS.

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in the fabric; examples of fabrics in which it is more suitable to use one class of weaves than others; influence of twists on textures; proper textures for single cloth; finding the diameter of yarns; calculating textures by diameters and interlacings.

Proper textures for double cloth, triple cloth; textures for fabrics in which the layout of warp and filling are unequal; changing textures from one weave to another; methods of increasing or decreasing the weight of fabrics without affecting its general appearance; system of adding an extra warp or an extra filling; stitching the same; stitching fabrics in which the layout of warp and filling is different. Stitching double cloths, triple or more ply cloth.

Method of stitching a silk stripe or plaid on a plain cotton fabric. Stitching fabrics after a motive for the purpose of ornamentation. The uses of stuffer fillings and warp and the manner of their introduction into the fabric.

FABRIC DESIGN

Includes the formation of fabrics by interlacing threads introduced at right angles; method of representing the interlacing on "square" or "point" paper; the terms "warp," "filling," "raiser," "sinker," "weave," etc., explained; planning the weave; the three foundation weaves; the plain or cotton weave; producing fancy effects on a plain weave foundation; color effects representing the same on point paper; derivative weaves; plain and fancy basket weaves; warp, filling and oblique ribs; planning drawing in drafts and chain drafts on paper; reducing weaves to their lowest number of harness.

Twills.—Common twills; representing color effects on twilled grounds; derivative weaves; broken twills; pointed twills; fancy pointed twills; plain and fancy skip twills; steep and reclining twills; entwining twills; curved twills; cork-screw twills; fancy twills; double twill effects; shaded twills; fancy ground weaves on twill foundation; fancy effect in twill combinations.

Satins.—Warp and filling effect; double satin; broken satin; satins broken after motives; ground weaves on satin foundation; fancy effects in broken satins; satin granite weaves; fancy granites; satin shading.

The above weaves enable the student to know the origin and application of all the simpler weaves used in the designing of all classes of textile fabrics. The following more especially in cotton goods:

Spot and stripe weaving; plain fancies and brilliants; fancy satin stripes on plain ground; other combinations of the plain weave with satins and twills; the various imitations of leno or gauze weaving; satin stripes; fancy ground weaves, derived from twills by combination; honey-comb weaves; madras combinations; floating warp for same; bedford cords and their combinations; huck and "Turkish" toweling; fabrics consisting of one or more systems of warp interlacing with one or more systems of filling; double and triple cloths as applied to very heavy cotton fabrics; stuffer warps and fillings; double plains; figured double and triple plains; figured dress-goods using an extra warp or filling for ornamentation; double-faced or figured reversible fabrics; seamless bags; method of stitching in the sides and bottoms of bags; plain piques or "welts;" fancy piques; piques as applied to Marseilles quiltings; combinations of single and double plains in dress-goods; other "novelty" weaves; methods of stitching a silk stripe or plaid on a cotton fabric; pile fabrics cut and uncut; cotton specialties swivel spots; lappet designing; principles of leno or gauze weaving; doups and easing-rod; standard, skeleton and ground harness; functions of each; combinations of plain weave and gauze effects; plain and fancy gauze in the same fabric.

FABRIC ANALYSIS

Includes yarn calculations, leading to and preparatory to analysis; standard of cotton yarns; system of numbering; obtaining the "count"; counts of single and doubled yarns; grading two, three, four or more ply yarns; standard woolen, worsted, silk and linen yarns; determining the counts of these yarns in the cotton system of numbering; weight, count and yard calculations; estimating qualities and cost of the minor threads in making fancy twists; contraction in twisting equal or unequal minor threads; obtaining the resultant counts and cost of the same; counts of minor threads necessary to produce a desired count; estimating the cost of woven fabrics; drafting and chain building; finding apparent cost per yard finished; reed, heddle and harness calculations.

The instruction in the Middle and Senior year is carried along the above lines, the object being to make the student familiar with the rules and best systems of cloth analysis. He is furnished

BENCH WORK IN WOOD SHOP.

with samples of all the grades of cotton fabrics and his analysis of the same must be complete and thorough in every respect.

On the completion of this year's work the student should be able to analyze and reproduce any sample of cotton goods submitted to him, given the necessary machines and materials.

THE JACQUARD MACHINE.

The instruction relating to this machine includes its history and development; relation to harness machines; its method of producing ornaments; analysis and description of its principal parts.

Locating the number one needle on the machine; French index; fine index; analysis and drawings of the vital parts of the single lift, single cylinder; raise and drop; double lift, single cylinder; double machines, showing their internal mechanism; the tie-up; English system—front cylinder, back cylinder; French system—left cylinder, right cylinder; description and uses of the leashes, couplings, mail, lingo, etc.; the comber or "compart" board; sectional; solid; threading from the front and from the back.

Tracing effects of "raisers" and "sinkers" on the design through pattern-cards and machine to the fabric; drawings of straight-through and point-tie-ups; journals and journal tie-ups; tie-ups for gauze weaving; slackening mechanisms and other motions necessary in doup work; running tie-ups in connection with harness-work; tie-up calculations.

JACQUARD DESIGNING

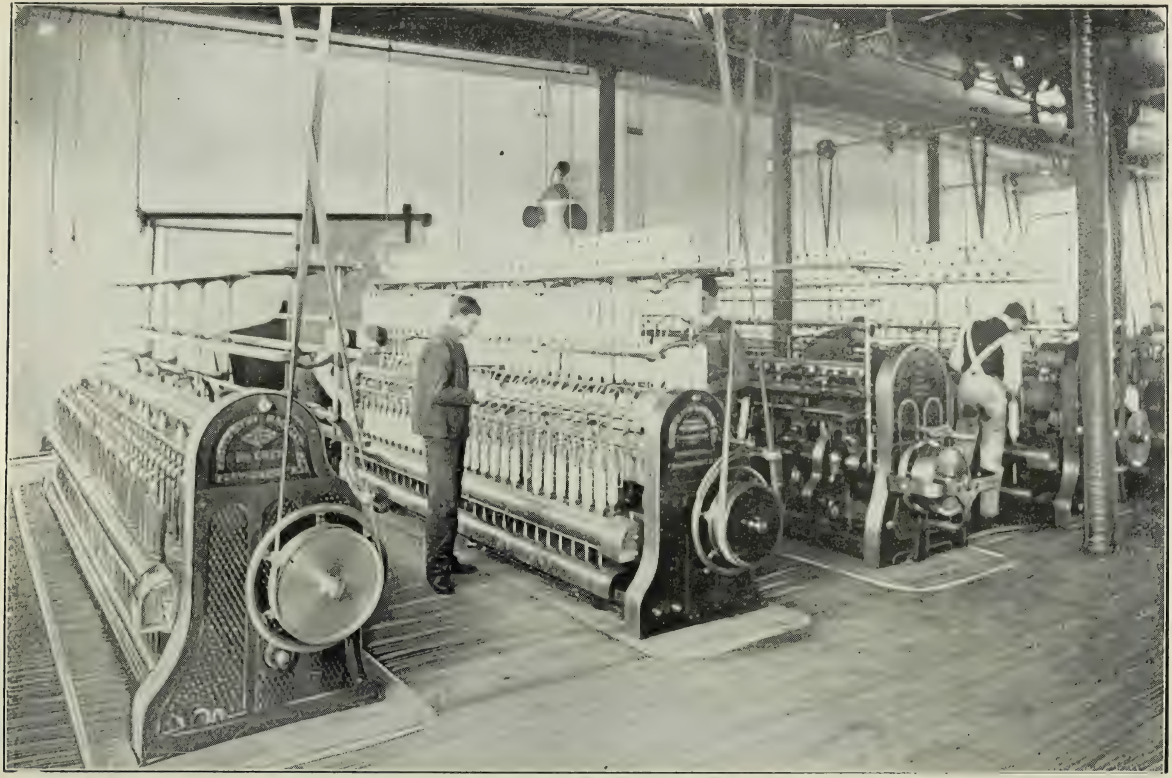
Includes the methods of producing ornament by mechanical means; laying out and managing designs for economical production; original sketches in fabric size; distributing forms on original sketches so as to avoid streaks, and produce symmetrical effects; "all-over" effects, "stripe "effects, "checker-board" and "diagonal" effects; selection of proper designing paper in regard to the texture to be employed; determining the number of hooks to be used, number of ends in a repeat and the number of repeats; enlarging and reducing sketches by the "square" system to the area to be occupied on the designing paper; transferring the pattern to design paper; painting in the sketch; stitching warp and filling floats by means of satin, twill and random stitches; indicating the ground weave; locating the number one, its influence on the direction of twills by its position on the comberboard; shading forms by satin and by twills; making complete designs for straight-through and center point tie-ups as such, and in their various combinations; ruling paper for card stamping; card stampers' instruction; stamping so as to make the load in weaving as light as possible; fabrics woven face up; fabrics woven face down; cutting and lacing cards; analysis and reproduction of Jacquard patterns; two or more ply Jacquard cloths; method of representing the various warps and fillings on design paper; color in Jacquard design; card stamping on reduced textures; complete designs for quilts, spreads, fancy table coverings, Damask and other turkey reds, dress-goods, vestings, curtains, towelings, lap-robes, hangings, upholstery, etc.

DEPARTMENT OF CARDING AND SPINNING.

CARDING.

The study of the cotton fibre, including botanical classification of cottons; location of the more important cotton-producing districts; primary species peculiar to each; Egyptian, Brazilian, Peruvian, Arabian, Indian and other cottons; commercial names and comparative values; spinning properties and suitability for the different yarns; American cotton, Sea Island, Orleans, Uplands; commercial grading and classification; the chemical and physical properties of cotton.

Ginning.—History and development of the processes now in use; the roller-gin as applied to the long-staple cottons; its construction and principle of extracting the seed; the rollers, beater, knives; feeding mechanism; proper speeds; setting the parts; their action on the fibre; merits of the roller-gin; the saw gin; its construction and principle of extracting the seed; pneumatic conveyors used in connection; various feeding mechanisms; the apron, rollers and guard; setting, speeding and operating the parts; action of the saws, grate, brush and condensers; different systems of packing the bale; square bale; cylindrical bale; com-



PRACTICE ON THE FLY FRAMES.

pressing; commercial handling; buying cottons; buying in lots and by grade; advantage of the latter method; points to be considered; detection of moisture and other impurities; methods of handling and drying out damp cotton; selection of grades most suitable for various yarns.

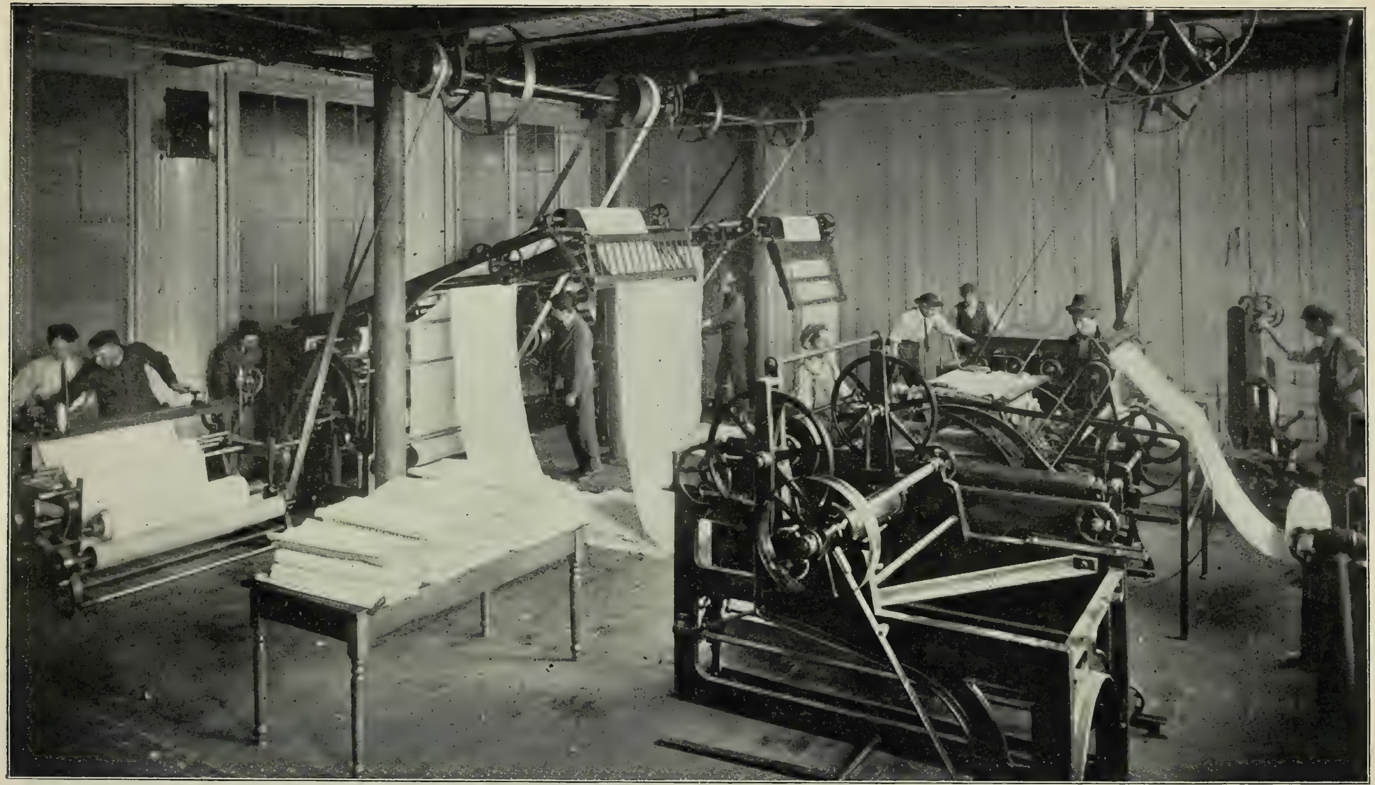
Mixing.—Its object, necessity of; merits of the different systems employed in laying out mixes; proper method of building and pulling down mixes; blending stocks; proportioning grades; examination of lengths and diameters of the fibres; color, cost, waste and production considered; trial mixes; records of percentages of waste; comparative tests for strength and for economical production; spinning qualities considered; the bale breaker, its action, capacity, cost and construction; mixing calculations; pneumatic conveyors; their construction and use; necessity of airing and aging cotton before working; precautions against fires; automatic fire extinguishers.

The Picker Room.—Arrangement of pickers and dust trunks; forms of dust trunks; automatic feeds; mechanisms for regulating the feed; production and cost; the pickers; breaker; intermediate; finisher; the cost, capacity and operation of each; their action and method of opening and cleansing the cotton; analysis and description of their working parts; setting and speeding; air current; dust trunks; feed rolls; beaters; girds and bars; dust cages; method of forming the laps; compression rolls; winding mechanisms; automatic measuring and stop motions; beaters; beater speeds and bearings; bar beaters; frail beaters; porcupine beaters; evening motions; the piano feed; its method of evening the feed; construction and principle of operation; other evening motions; lap changes and calculations; miscellaneous instruction; general practice on the machines.

Carding.—Its history, growth and development; the principle of carding; its object and necessity; types of carding engines, roller cards; stationary top flat cards; revolving top flat cards; the production, cost, construction and merits of each of the above systems; leading methods of setting the flats and rollers; draughts and change gears; percentages of waste; calculating productions; stripping motions and appliances; turning up and clothing cylinders; clothing flats, card grinding frame, traverse roll and flexible strickle; grinding flats, cylinders, workers and strippers; needle, diamond, plough and hooked points on card wire; clothing flats and cylinders; carding, both white and dyed stock; lap machines and combs; their action and operation explained; railway heads; systems of drawing with and without railway heads; their combination with section carding; independent heads; chain, screw and other evening motions; their construction and use; draught rolls; leather top rolls; metallic rolls; draught calculations and change gears; stop motions; the coiler; its construction and use; drawing and weighting; leather rolls; metallic rolls; stop motions; frame; production and cost of the machines; the one-frame, two-frame and weighting; leather rolls, metallic rolls; stop motions; their mechanical principles; suitable draughts for the various slivers; calculating draughts and draught-change gears; productions of the drawing frame; practice on the machines; the fly frames; slubber, intermediate, roving and jack frames; the principles involved and the construction of the modern machines; their history and development; their mechanisms explained; drawings of their vital parts; the draught rolls; their setting and use; building the bobbin; the flyer leading; the bobbin leading; the builder rail; the differential motion; kinds; its action; drawings of, analyzed and described; the tension and lay change gears; draught and twist changes on clubbers; intermediates, roving and jack frames; calculating the same; productions; proper speeds; setting up and operating the various machines.

SPINNING.

Ring spinning; its history; construction of the modern spinning frame; spindles; kinds in general use; spindle speeds; the theory of spinning; rings; travelers; sizes suitable for different counts; builder motions; their construction; warp and "filling" motions; cams used; traverse; traverse rail; the draught rolls; covering solid and shell rollers; setting the rolls to suit the length of staple; calculation in draughts and draught-change gears; proper draughts and speeds for different counts; twists; soft, medium and hard twists; hosiery and doubling twists; standard twists; change twist gear; draught and twist constants; cap and flyer spinning; principles explained; their disadvantages; cotton yarn measure; changing from one count to another; hank roving and draughts; twists; rules for obtaining the contraction; increasing production economically; ring twisters; wet and dry; reeling; standard skeins; mule spinning; its history and development; self-operating and self-acting mules; the mule head stock;



BRUSHERS, FOLDERS AND NAPPERS—CLOTH ROOM, TEXTILE DEPARTMENT.

analysis and description of its parts; the sequence of movements; timing the same; speeds of the parts; scroll shaft; back shaft; counter faller shaft; cam shaft; the spindles; method of driving the same; the construction and operation of the carriage; the fallers; building bobbins and cops; the quadrant; its functions; the rolls; draughts; calculations; drawings of the vital parts of the head stock; traveling scavengers; rope and band making; calculations necessary to their production; preparation of yarns for the market; spooling, winding, reeling and bunching yarns; packing, baling and boxing for transportation.

The instruction in carding and spinning consists of illustrated lectures, recitations from technical text-books, and demonstrations, in addition to the large amount of practical work required in operating, taking apart, erecting, repairing, and caring for the several machines.

The student will be drilled thoroughly in all the calculations pertaining to carding and spinning.

Especial attention is paid to the grinding and setting of the cards, and to the manipulation of both white and colored stocks.

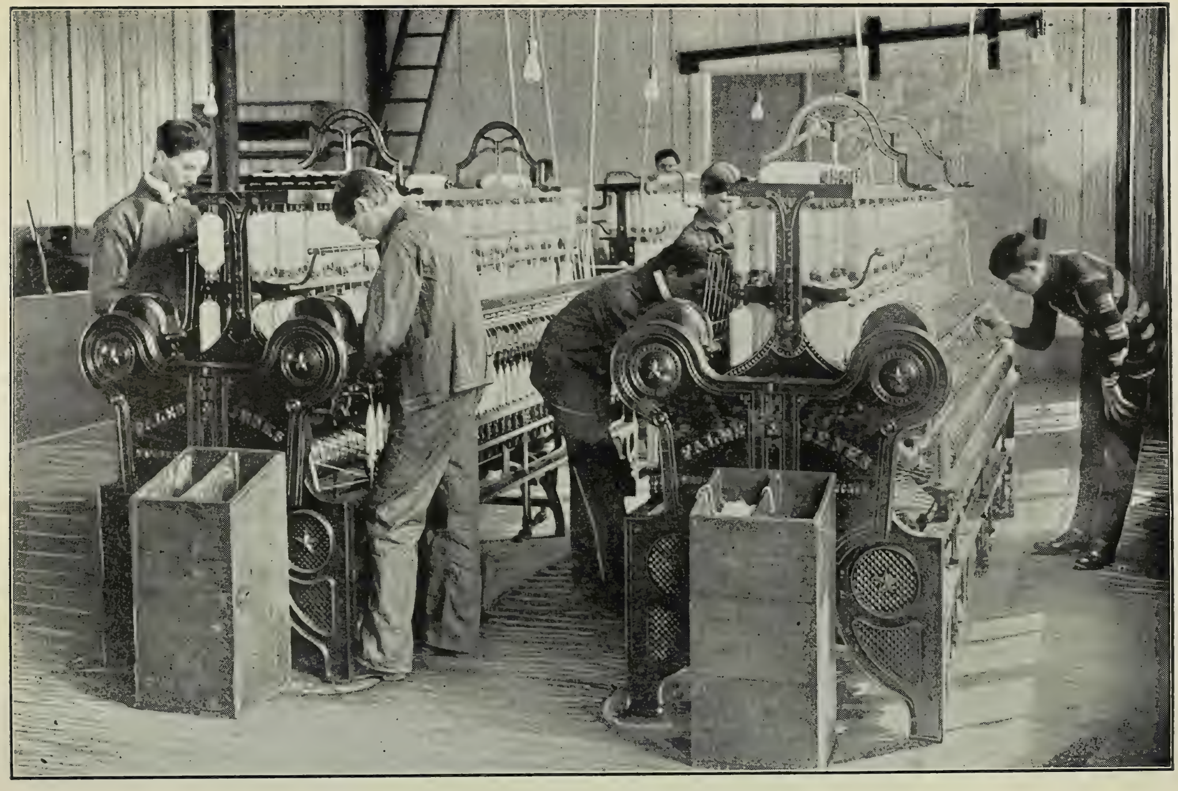
A stated amount of warp, filling and twist-yarns is required to be produced by each student, he making all necessary calculations and performing all the operations on the machines under the immediate direction of the instructor in charge.

DEPARTMENT OF WEAVING.

The instruction in this department includes: Warpers; types of warpers; their construction; mechanical and electrical stop motions; electrical indicators; long and short chain warpers; loop forming mechanisms; long chain quillers; their use; section warping; pin warping; splitting in pins; proper tensions; building pin warps; beam warping; beamers and creels; the single-end electrical stop motion and indicator; mechanical stop motions; measuring devices; warp and warp yarn calculations; slashing; its object and effect in weaving; slashing warps; slashers, the steam cylinder slasher; advantages and disadvantages of this system; drying surface of the cylinders; hot air slashers; their construction; arranging beams on the creel; the size vat; heating the same; immersion and squeeze rolls; coverings for the rolls; the separator rods; leases; winding mechanism and variable speeds; measuring and cut marking devices; size kettles; receipts for sizing compounds; mixing and cooking sizes;

nature of yarns considered in sizing; drawing-in, tying-in and twisting-in warps; the care, cost and construction of loom harness; drawing cross and fancy draws; harness and heddle calculations; reeding; American and English systems of numbering reeds; selection and care of reeds; reeding in plain and fancy patterns; reed calculations; looming warps; history and development of weaving mechanisms; hand looms; power looms; plain weaving; shedding, picking, lay, let-off and take-up motions; methods of forming the "shed"; the cam and cam scroll looms; methods of strapping-up, leveling and adjusting the harness; picking motions; principles of their construction; the lay or batten motion; let-off motions, friction and mechanical; take-up motions; positive and conditional; change gears; pick constants; warps stop motions; filling stop motions; protectors, magazine looms; their construction; changing plain looms to weave fancy cotton fabrics; gingham looms; box motions; simple and compound levers for actuating the boxes; box chains; their planning, building, and manner of controlling the boxes; multipliers and multiplier chains; circular boxes; witches, dobbies and "head motions"; open and close shed head motions; single and double cylinder; single and double acting dobbies; chain building for the same; special looms for such fabrics as leno, lappet, bags, towels, etc.; doup selvages; side and center; fringe weaving explained; lectures and practice in loom fixing; lining the loom parts; shuttle troubles and their remedies; filling cutting; the use, care and building of box chains; repeaters and multipliers; boxes controlled by the Jacquard machine; putting in pickers; picker sticks and connections; picker motion; their mechanical construction explained; cam and cone; alternating pick and sliding pick motions; warp stop motion; filling stop motions; knock-off lever, shipper and fork; protector, temples; let-off and take-up motions; Northrop looms; analysis of the filling changing mechanism; proper loom speeds; increasing the production of looms; miscellaneous weaving calculations; finishing; inspection of cloth; detecting and marking imperfections; burling, mending; trimming; singeing and brushing machines; operation and care of the same; emery rolls; sand rolls; wire nappers; washing, tentering and drying machines; folding, doubling and board rolling; methods of numbering, labeling, etc.; stamping and pressing; boxing and bale-packing.

Instruction on weaving, in all its branches, will be given by



PRACTICE IN RING SPINNING.

means of lectures, recitations, demonstrations, and practice on the splendid equipment of looms.

DEPARTMENT OF DYEING.

This department occupies the east end of the basement in the A. French Textile School. The laboratory and dye-house are well equipped with all necessary apparatus, chemicals, dyestuffs, fixing agents, etc., for proper instruction. The school owns a valuable collection of dyed specimens, yarns, chemicals, dye woods, and coloring matters.

Bleaching of the common fibres demands special knowledge, and rapid advances have been made through careful study of the chemistry of this subject. Large works are erected for bleaching and dyeing in the varied forms of manufacture an,d the industry calls for men who have had a good training in chemistry.

It is the object of this course to give the student a clear idea of the fundamental principles which underlie the arts of bleaching and dyeing, by means of lectures, recitations, experiments and research. This department also dyes and bleaches the yarns used in the weaving department of the school, thus giving the student a large quantity of practical work throughout the entire year.

The outline of the course is as follows:

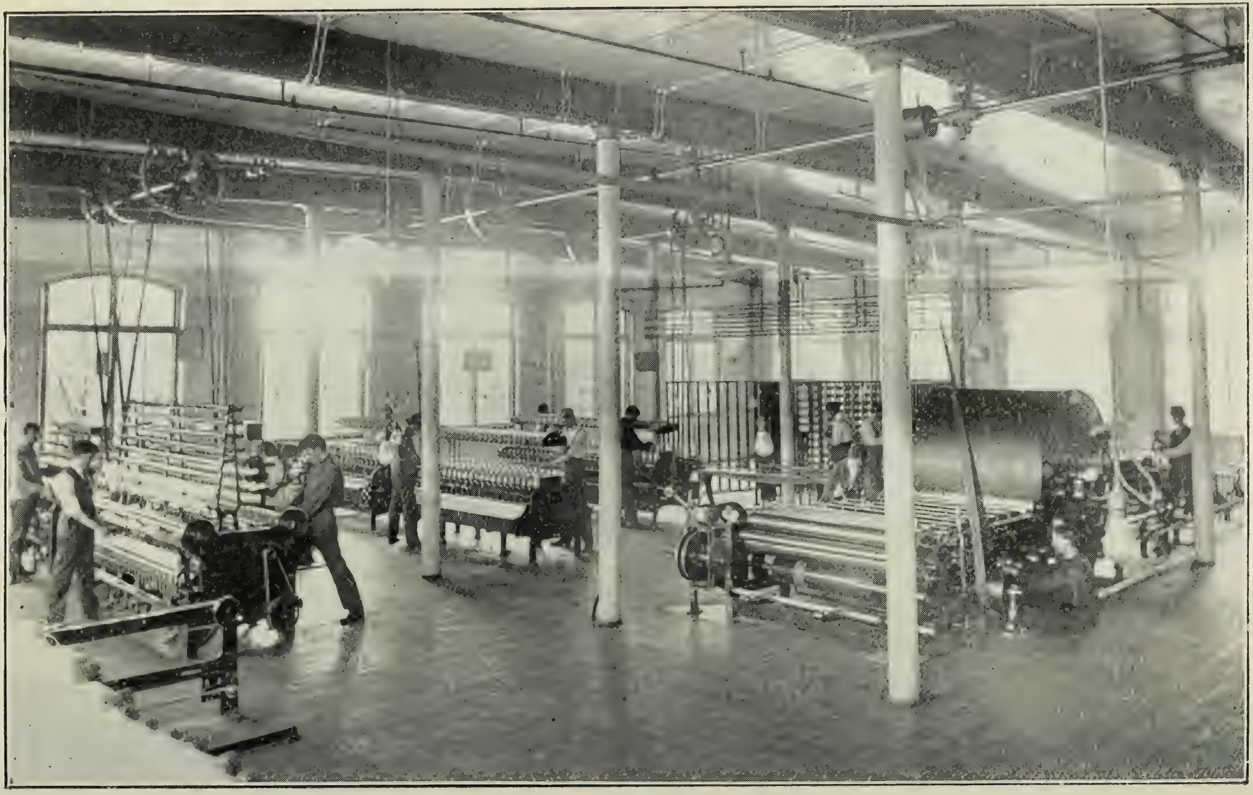
Dyeing and Bleaching, Senior class, are taught by means of lectures and recitations two hours per week through the year. The following mentioned lectures are examples: Cotton Bleaching, Mercerized Cotton, Artificial Silk, Wool Scouring, Silk, Linen, Carbonizing, History of Dyeing, Theories, Water, including impurities and purification, Natural Coloring Matters, Artificial Dyestuffs, Mordants.

Experimental Dyeing. The Senior class works in the laboratory and dye-house four hours per week through the year. The student bleaches cotton cloth and yarn, and dyes several kinds of textile materials on a small scale, being furnished with cotton, wool and silk for this purpose; and the class also, at the discretion of the professor, dyes larger quantities of cloth and yarn. Each student is required to mount specimens of his work on suitable cards, with the necessary notes, for future reference; several of these cards are retained as the property of the school. The work includes *Technology of Vegetables and Animal Fibres:* Cotton, linen, wool, silk, etc., chemical and physical properties, microscopical study, action of chemicals, heat, frost, etc. *Operations Preliminary to Dyeing:* Bleaching, wool scouring, silk reeling and scouring, action of soaps, etc. *Chemicals not Dyestuffs:* Aluminum, iron, tin, chromium, copper and organic mordants; fixing agents, leveling agents and assistants. *Natural Coloring Matters:* Application of indigo, logwood, cutch, fustic, Brazilwood, cochineal, etc. *Artificial Coloring Matters:* Examples from each class are studied and applied by the student. *Compound Shades. Matching off. Testing and Valuation of Dyestuffs:* The samples dyed are tested as to permanence against the action of light, friction, washing, acids, alkalies. *Detection of Dyes in the Fiber. Comparative Tests. Manufacture of Dyes.* The class prepares dyes and then applies them properly.

TEXTILE MECHANICS AND MILL ENGINEERING.

Besides understanding the different processes of cotton manufacture, a mill superintendent is called upon to manage the motive power, operation and general economy of an entire plant. To this end a special course has been provided in the department of Mechanical Engineering.

It includes, first, during the third term of the Middle year, a thorough investigation of the laws of statics, with special attention to the solution of practical problems by moments, three forces meeting in a point, resolution of forces, resultant of parallel forces and center of gravity of bodies. The simple machine and the underlying principles of the lever, wheel and axle, inclined plane, pulley, screw, etc., are discussed, together with friction, its cause and effect. The student then takes up the study of dynamics, based on Newton's laws of motion, and problems involving mass, force, momentum, acceleration and inertia are theoretically investigated. In connection with this course a series of lectures on the kinetic energy of fly-wheels and the bursting tendency due to centrifugal force, are given. Also means of determining efficiency and horse-power of waterwheels. In the first term of the Senior year the student takes up Strength of Materials. In studying this subject, attention is directed especially to the action of simple stresses in the differ-



SPOOLERS, TWISTERS, WARPERS AND SLASHER.

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ent building materials. The transverse strength of beams is thoroughly investigated, and expressions of the bending moment and resting moment are thoroughly brought out; the resilience of materials is introduced and methods are explained for determining the formula for torsion in shafts, and the amount of horse-power transmitted. In connection with this work, a series of lectures are given on designing lap and butt joints, and methods of determining their efficiency, including the pressure in boilers, tubes, water-pipes, etc. During the third term a series of lectures are given on lattice girders of the Warren, Howe and Pratt type, with special attention to the designing of roofs and towers.

The second term of the Senior year is devoted principally to the steam-engine, power transmission and machine-design. In this course special attention is given to the economy of the different types of boilers, and of fuel and water; with means of preventing corrosion, incrustations and general destructive elements. Attention is given to the management and design of the principal settings and fittings, stacks, economizers, pumps and injectors. In the study of the steam-engine the student takes up first the theoretical types and then from the mechanics of the steam to the commercial types. Especial attention is given to the design and operation of errors in these by the indicator diagram. In the third term of the Senior year a thorough course is given in Mill Construction, Mill Ventilation, Mill Sanitation and Fire Protection. Humidifiers, sprinkler systems and heating systems are studied in detail. The student in this course also has the advantage of attending a course of lectures in the management and operation of manufacturing plants.

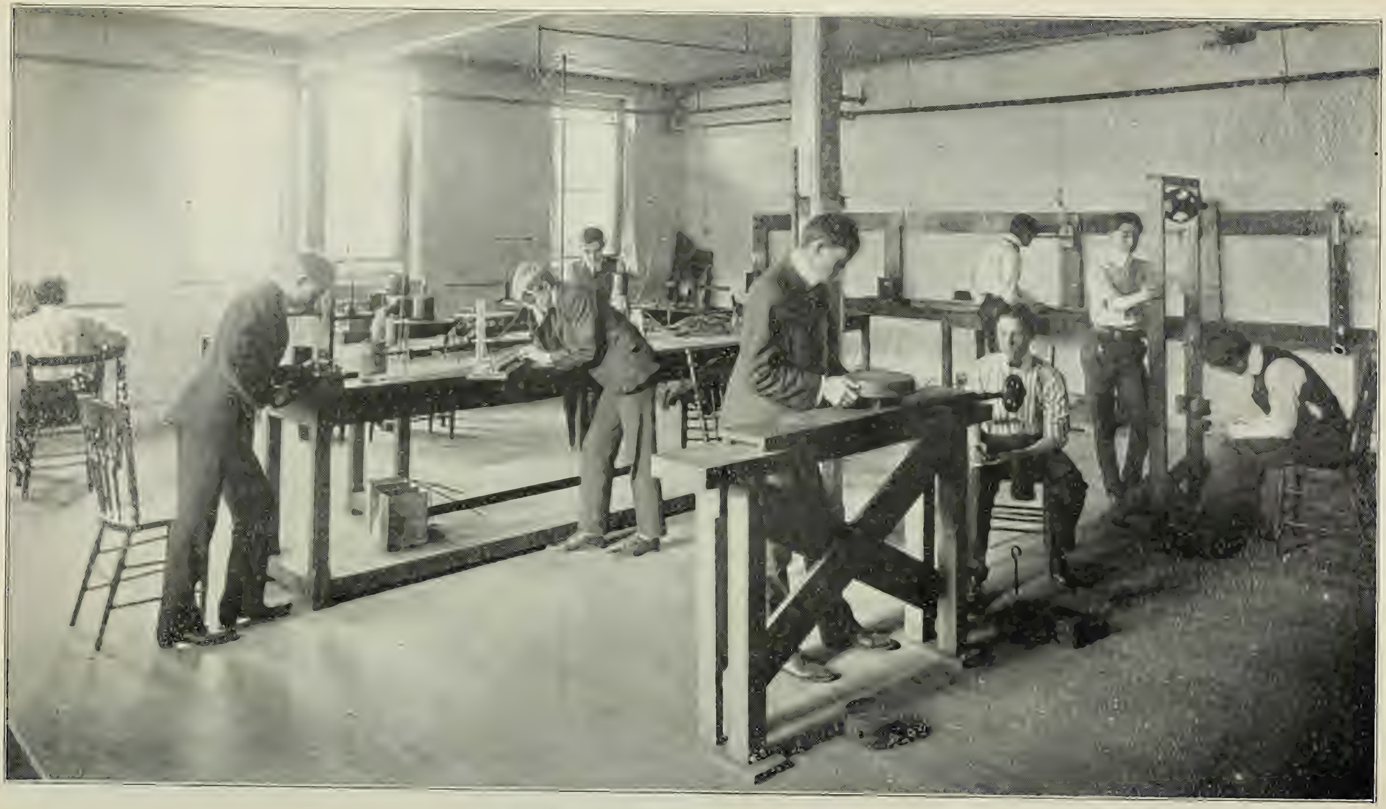
SPECIAL TEXTILE COURSE.

In order to accommodate to a limited extent a class of young men who may not have the time or means to take the full Textile Course, a special course in Textiles is offered, which may be finished in two years. As students taking this course are in the mill at practice every day in the week, in order that they may not interfere with the regular students, only a limited number (24) can be taken. All applicants for this course are required to pass an examination in Arithmetic, and must be especially proficient in the following subjects: Compound numbers, Ratio and Proportion, Percentage, Involution and Evolution, Alligation and Mensuration. In case there are more than twenty-four, those who are most proficient in the Arithmetic examination will be allowed to enter. Applicants for this course will be received only at the beginning of the year. The examination for this course will be held at the beginning of the fall session. No student will be received in this class at other times. No student of the school is eligible to this course after becoming deficient in any of the other courses. No students will be received in the Textile Department unless they are taking the regular course, or the special course here mentioned. The requirement in Arithmetic is absolutely necessary for the success of the student. In the practical work which he receives in the mill, in the calculation of speeds, etc., no time is available for drilling the student in the principles of Arithmetic. All of his time is taken up in practice, and such recitation work as will benefit his practical knowledge of Textile work. This course is not accompanied by a certificate or degree. Students in this course will be admitted only at the beginning of the fall session.

DEPARTMENT OF PHYSICS,

The aim of this department is to present the fundamental principles of Physics, the experimental basis upon which they rest, and, as far as possible, the mathematical reasoning employed in the deduction of various physical formulas. The student is not only made acquainted with certain physical laws in accordance with which physical events occur, but is taught that all physical quantities can be represented by symbols, and that certain mathematical relations exist between them, in consequence of which logical deductions can be made.

The study of Physics is taken up at the beginning of the Junior year in a thorough and systematic way. Numerous problems are assigned in the recitations, of which there are two per week, in order to thoroughly familiarize the student with the significance and practical use of the principles which he learns, and



IN THE PHYSICS LABORATORY.

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the physical formulas which he sees deduced. One experimental lecture and two recitations per week are given in this course.

The lecture-room is provided with various facilities for experimental demonstration. By means of shades the room can be darkened when needed; the lecture-table is provided with a water-tank, and water, gas and electricity from the dynamo are available; also current from storage battery of nine chloride accumulator-cells. There is a good double stereopticon with arc-lamps and mechanical dissolver; also a projecting lantern with J. B. Colt automatic feed arc-lamp, and supplied with vertical attachment—an accessory to a lecture-room which is indispensable for the satisfactory presentation, to a large class, of a great variety of physical phenomena. The department is also supplied with a polariscope for the projection on the screen of the colors of crystalline plates, and a collection of about thirty-five lantern-slides used in lectures. The outfit of apparatus for lecture experiments is large, and additions to it are constantly being made. Among the many pieces of apparatus may be named: a hydraulic press, a large rotary air-pump, rotating apparatus with accessories, a mandrel for high speed rotation, gyroscope, balances, Hero's fountain, barometers, Holtz machine, eight-inch spark Ruhmkorff induction-coil, Geissler and Crookes tubes, several X-Ray tubes and fluoroscope, a battery of Leyden jars, wireless telegraph apparatus, apparatus for the mutual action of currents, tangent galvanometers, resistance boxes, thermopile, two large parabolic reflectors, lenses, concave and convex mirrors, apparatus for demonstrating the laws of reflection and refraction of light, revolving mirror and manometric capsule, Koenig's interference apparatus for sound, organ-pipes, tuning-forks, siren, sonometer, spectrometer, diffraction-gratings, prisms and many other pieces.

The equipment of the physical laboratory is very complete, a large addition having been made during the present year, both by construction in the shops of the institution and by purchase. For laboratory work in electricity, the department is supplied with a sensitive Thompson mirror galvanometer, a Siemens mirror galvanometer, a mirror galvanometer by Queen & Co., a very sensitive D'Arsonval galvanometer, a Rowland's patent D'Arsonval galvanometer, a large coil tangent galvanometer, three small D'Arsonval galvanometers, a magnetometer, a 5-dial Wheatstone bridge, two slide wire bridges, a Weston ammeter, ten resistance-boxes of various sizes, a copper voltameter, an earth coil, a ballistic galvanometer, a Carhart-Clark standard cell, a 1-M. F. standard condenser and a Kempe discharge key for capacity tests.

The course in laboratory instruction includes experimental verification of the physical formulas, the determination of various physical constants, and is designed to give the student practice in the use of instruments of precision and a certain amount of proficiency in physical manipulation. Among the experiments performed in this laboratory are the following: Determination of the acceleration of gravity by the physical pendulum; of the modulus of torsion of a steel wire; of the coefficient of friction between two bodies; of the relation between power and load of a wheel and axle; verification of Boyle's Law; determination of radiation constant of a calorimeter; of the heat of fusion of ice; of the heat of vaporization of water; of the specific heat of a metal; verification of the laws of vibrating strings by sonometer; determination of index of refraction of glass by spectrometer, of distance between the lines of a diffraction grating; the measurement of resistance by Wheatstone bridge; measurement of E. M. F. and resistance of batteries; of magnetic moment of magnet by magnetometer; of the horizontal intensity of the earth's field; of the capacity of condensers; of temperature coefficient of resistance of copper; of the magnetic properties of iron by ballistic galvanometer method.

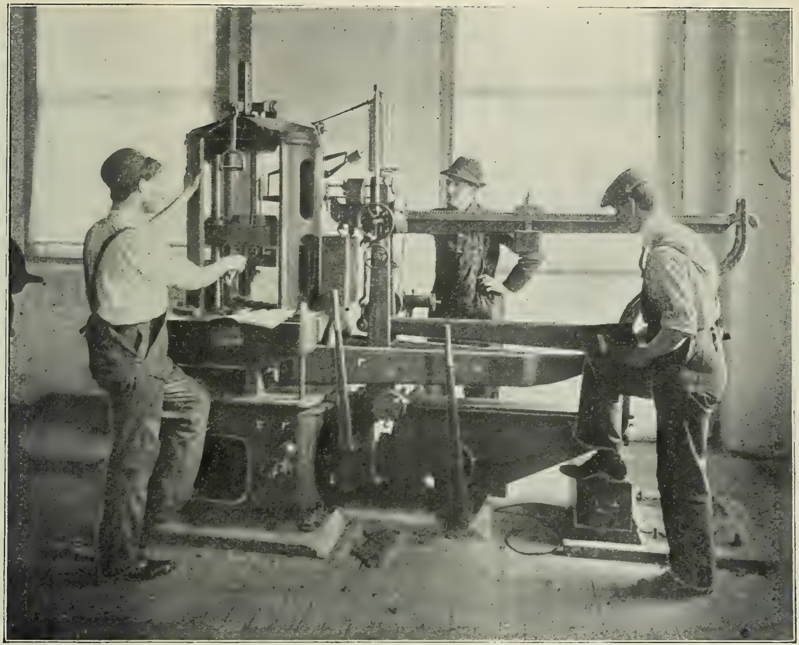
Carefully written reports are required on all experiments performed. These are, in fact, considered an important feature of the course, for in this way the student acquires clearness and facility of expression in the description of scientific investigations.

The following courses are offered in this department:

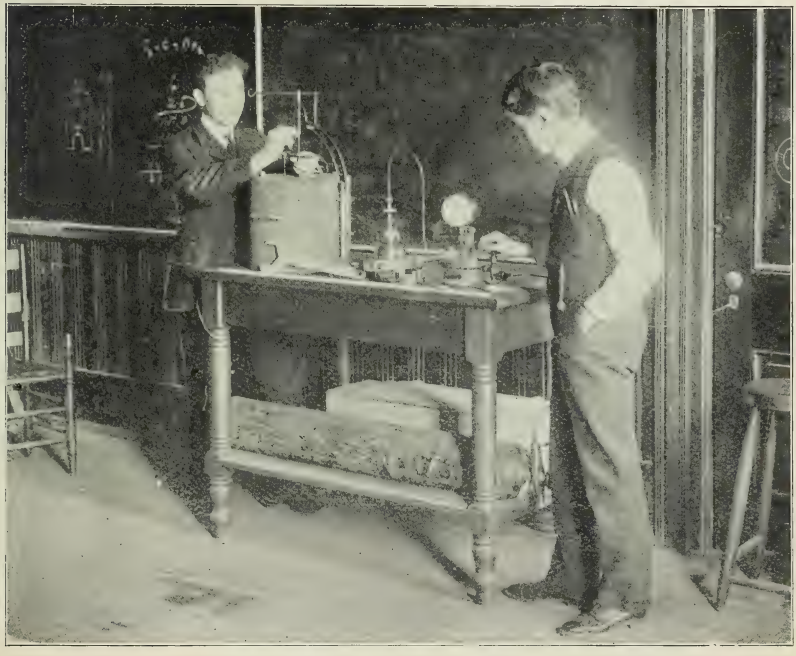
1. GENERAL PHYSICS.

The aim of this course is to give a general survey of the field by means of experimental lectures and study of a text-book. Three hours per week during the first year, and four hours per week during the first term of the second year.

Required of all students except Textile Engineers.



100,000 LB. AUTOMATIC AND AUTOGRAPHIC TESTING MACHINE.
EXPERIMENTAL LABORATORY



MAHLER CALORIMETER, DEPARTMENT OF CHEMISTRY.

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2. GENERAL PHYSICS—SHORT COURSE.

This course covers the same ground as course 1, except that less time is devoted to the subject. Three hours per week throughout the year.

Required of Textile Engineering Juniors.

2. PHYSICAL LABORATORY.

Three hours per week throughout one year, beginning with the third term.

Required of all students except Textile Engineers.

4. PHYSICAL LABORATORY—ELECTRICAL MEASUREMENTS.

Advanced course for Electrical Engineers. Three hours per week during the second term.

Required of Electrical Engineering Middlers.

DEPARTMENT OF EXPERIMENTAL ENGINEERING.

The object of courses in this department is to enable the engineering student to recognize and apply such natural forces and materials as are adapted to his uses.

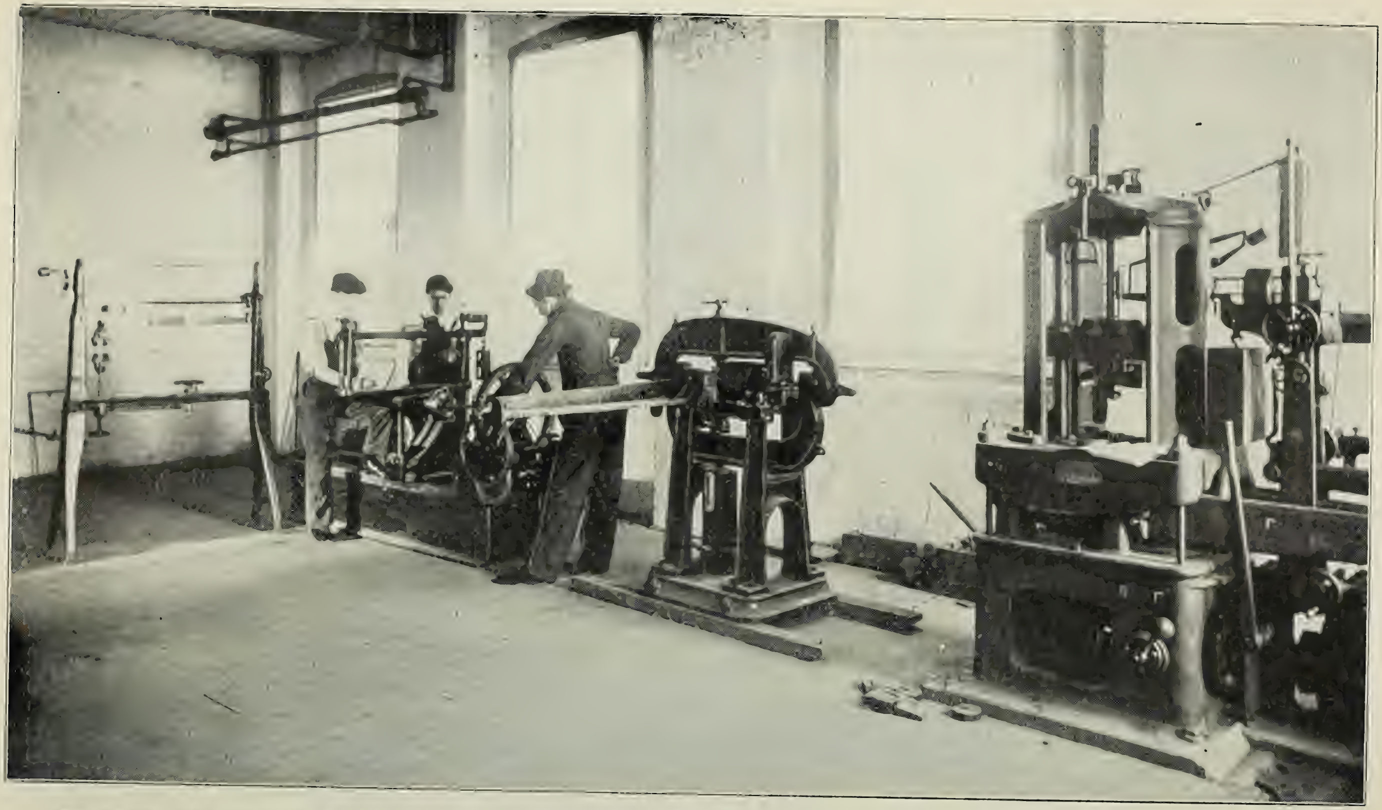
In order that he may be capable of intelligently and skillfully designing, constructing and supervising all kinds of machinery, it is necessary that he should pursue a thorough and extensive course of training, both theoretical and practical. While theoretical courses are of primary importance in affording mental discipline not to be derived from practical research, it will be seen that the latter is made to go hand in hand with the former, it being believed that from continual practical applications of theoretical conclusions a broader and more tangible conception of their truths may be derived. It is not, then, at the expense of the abstract mathematical law that time is given to show how it may be involved in the construction of the simplest machine, for not only is a new and suggestive meaning thereby given to the various contrivances of the mechanism, but an insight into the whole significance of the law itself is gained, which can be acquired only by observing practical applications.

To explicate theoretical principles, however, is not the only value of the experimental work of the department. If the student desires to go from college to the manufacturing world, it is essential that he should be familiar with working machines, methods of management, and as much of the every-day detail of engineering work as it is possible for him to acquire as a supplement to his higher training.

LABORATORY DEPARTMENT.

The Laboratory Equipment consists of the following machines and instruments:

†One Olsen Testing Machine.
One 2,000-pound Transverse Testing Machine.
†One Riehle Automatic Autographic Testing Machine.
†One Olsen Torsion Testing Machine.
†One Lubricant or Oil Testing Machine.
†One Cement Testing Machine and complete outfit for cement.
*One 6-H. P. Gas Engine.
†One 60-H. P. Corliss Engine.
†One 500-pound ice-making plant.
*One set of Crosby Steam Indicators with springs complete.
*One Throttling Calorimeter.
†One Pulsometer Steam Pump.
†One Pelton Motor.
*Thermometers.
*One Pump Governor.
*One 6-H. P. Automatic Steam-engine.
*One Model Hydraulic Press.
*One Detroit Steam Separator.
*One Crosby Gauge Tester.
*One 200-pound Steam Gauge.
*One 300-pound Water Pressure Gauge.
*One Vacuum Gauge.
*One Steam Pump.
*One Pyrometer.
*One Hydraulic Ram.
*One Baum Steam and Oil Separator.



CEMENT, TORSION, LUBRICANT AND TENSILE TESTING MACHINES.—EXPERIMENTAL LABORATORY.

*Seven Steam Gauges.
*Six Water Gauges.
*Six Vacuum Gauges.
*Three Speed Indicators.
*One Gas Meter.
*One Water Meter.
*One 4″ Centrifugal Pump.
*Two Micrometer Calipers.
*Three Planimeters.
*Two Injectors.
*One 3 1-2″ Exhaust Head.
*Numerous Pulleys.

LABORATORY EXPERIMENTS.

Strength of Materials: Tensile and Transverse; Compression and Torsion; Brick; Stone; Cement; Flexure.

Lubricants: Coefficient of Friction; Viscosity; Chill-test; Flash-test.

Calibration: Indicator-springs and Steam-gauges; Indicator Drum-spring; Water-meters; Gas-meters; Planimeters.

Steam-Engine: Indicator-practice; Valve-setting; Clearance; Calorimetry; Barrel and Throttling.

Efficiency Tests: Steam-boiler; Water-motor; Steam-pump; Steam-engine; Gas-engine; Pulsometer; Injector; Centrifugal Pump; Hydraulic Ram.

DEPARTMENT OF PHYSICAL EDUCATION.

The ultimate success of a nation is dependent upon its health.

The educated man is he whose body, as well as mind, is the obedient servant of his will.

The nation or community, made up largely of poorly nourished, weak, or sickly individuals, is never the one to reach any high degree of success in anything.

Occasionally a man who is weak and unhealthy reaches a prominence in his calling; but he is such an *exception* to the rule, that he is *always* pointed to as a genius. Not because he excels all the other workers in his line, but because he is successful *in spite* of bad health or weak body. On the other hand, if a strong, healthy man who has taken athletic exercise happens to break down, or dies of heart or lung trouble, no matter what the immediate cause may be, there are a certain number of people who call attention to the circumstance and attribute it to the fact that "he played football," "worked in a gymnasium," or "took part in some athletic sport."

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* Donation.
† Partial donation.

If the same man had not failed no attention would have been paid him as an athlete, no matter how successful he might become in his business or profession.

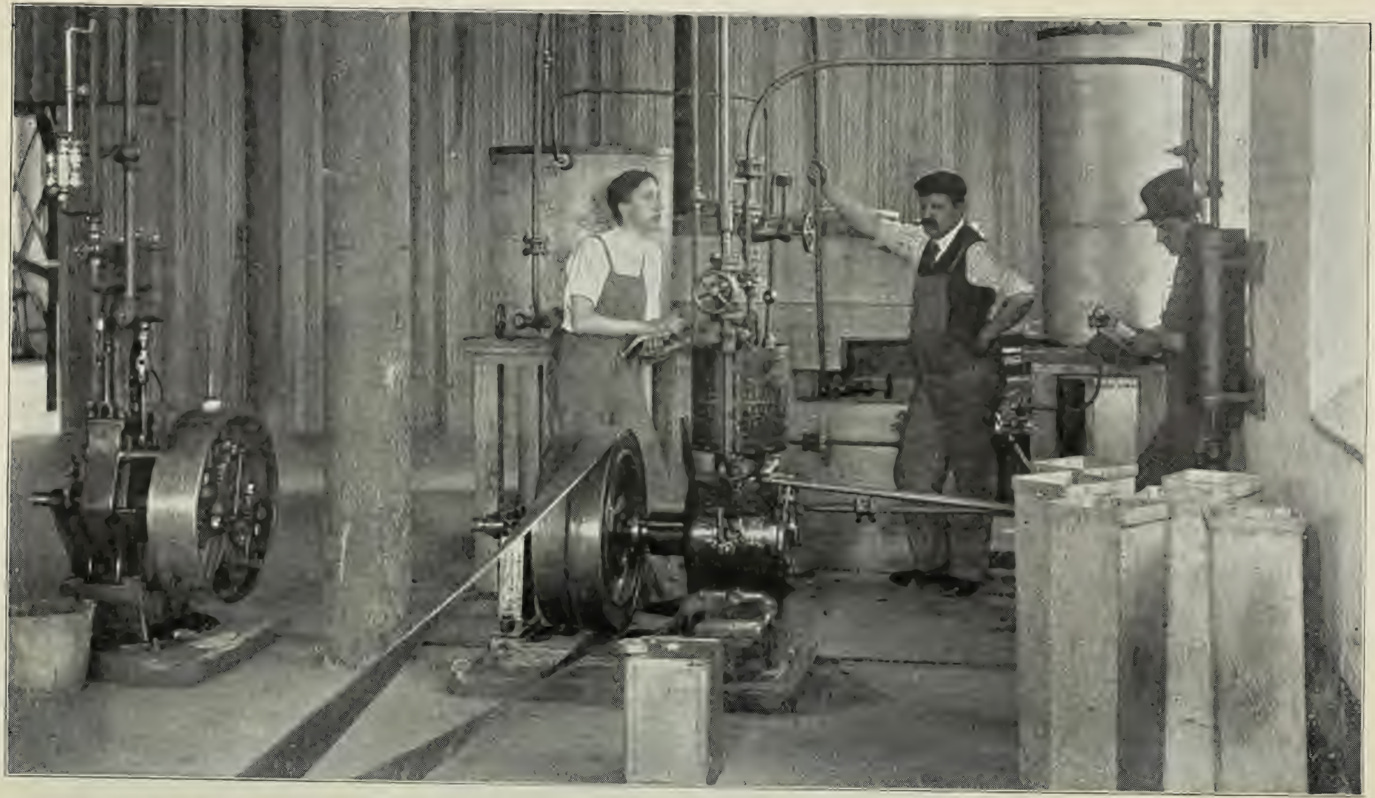
And yet these two cases are significant of a certain truth—that the weak, sickly man, *if* successful, causes remark. And the strong, healthy man who fails likewise causes remark. They are exceptions which prove a rule which would read: Everything being equal, except health and strength, the man who has the two last qualifications will succeed where the weak and unhealthy break down and fail. This would be the source of a great deal of discouragement to those with weak, sickly bodies if it were not for the fact that they can become strong and healthy if they so desire, the only price to pay being proper care and exercise of their bodies.

No man is too old to be improved by a judicious course of physical training. And any young man of average build can, by systematic exercise, develop his body and acquire such a degree of health, strength and vigor as to seem almost miraculous.

The Department of Physical Culture of the Georgia School of Technology has for its aim the promotion of the health and strength of the student-body as a whole; the development of "a sound mind in a sound body," that each may be enabled to do his work vigorously and with pleasure. And after he has earned the right to rest, by the success that will attend such work, he will have a healthy body which will enable him to enjoy life and not consider it a burden. With this end in view, we encourage all forms of athletic and gymnastic exercises as "means to an end."

Every student is encouraged to take exercise in the Gymnasium and on the Athletic Field.

The gymnasium is a large, airy hall, seventy by forty feet, with a high ceiling permitting the use of flying rings and other swinging apparatus. Adjoining this are the Physical Director's office,



REFRIGERATING PLANT, CAPACITY 500 LBS. ICE PER DAY.—EXPERIMENTAL LABORATORY.

bath-rooms, provided with hot and cold shower-baths, dressing-rooms, etc. The history of the past and present shows that the community which pays attention to the physical well-being of its members is the one which is most successful in all things. Greek History was made by the nation which paid especial attention to Physical Education. Our Gymnasium has been refitted, old apparatus remodeled, and new apparatus of the most modern type added.

We are prepared to conduct this department upon the most scientific lines, and our outfit for physical examinations consists of a universal dynamometer, scales, calipers, spirometer, morphograph, measuring rod, etc., and is surpassed by none in the country. Recognizing the fact that the student entering the Apprentice class is at the period when he is passing from boyhood to manhood, and that his future success in life is largely dependent upon a strong, healthy body, we have made a graded course in gymnastics compulsory for all members of this class.

Each member of the Apprentice class is required to report to the Director of Physical Culture, who will give him a thorough examination and prescribe the exercise he is to take.

In addition to the physical examination, an examination in light and heavy gymnastics is given at the beginning of the term, and each man placed in a squad according to the grade he makes.

Examinations are made at the end of each term, thus enabling any one who applies himself to pass to a higher grade. Each student in the Apprentice Class is required to supply himself with a regulation gymnasium uniform and shoes at a cost of about two dollars.

Three principles should form the foundation of any system of gymnastics:

1. Recreational, because this is the part of the work which renews and strengthens all the vital processes of life and sends the man out with a bright eye, a more elastic step and a stronger body to take up the burden of life.

2. Educational. This part educates the body and mind that they may co-ordinate and work together, thus doing a maximum amount of work with a minimum expenditure of energy.

3. Medical This branch of the work enables the examiner to ascertain the condition of the student, and if there is any departure from the normal to prescribe work which will correct it.

Any student of the school can procure a thorough physical examination by making special arrangements with the Director.

COURSE IN GRADED GYMNASTICS.

First—Work on pulley weights and other light apparatus to develop the muscular system, heart and lungs.

Second—Light combinations, e. g., Indian Clubs, etc., to develop grace, co-ordination and self-control.

Third—Work on the heavy apparatus to develop strength, physical judgment, muscular control, agility and courage.

Fourth—Competitive exercises to develop judgment, coolness, self-confidence, etc.

ADVANCED GYMNASTICS.

All students are encouraged to do individual work, and classes in advanced gymnastics are formed.

A Gymnastic exhibition and contest for the college championship is held annually.

ATHLETICS.

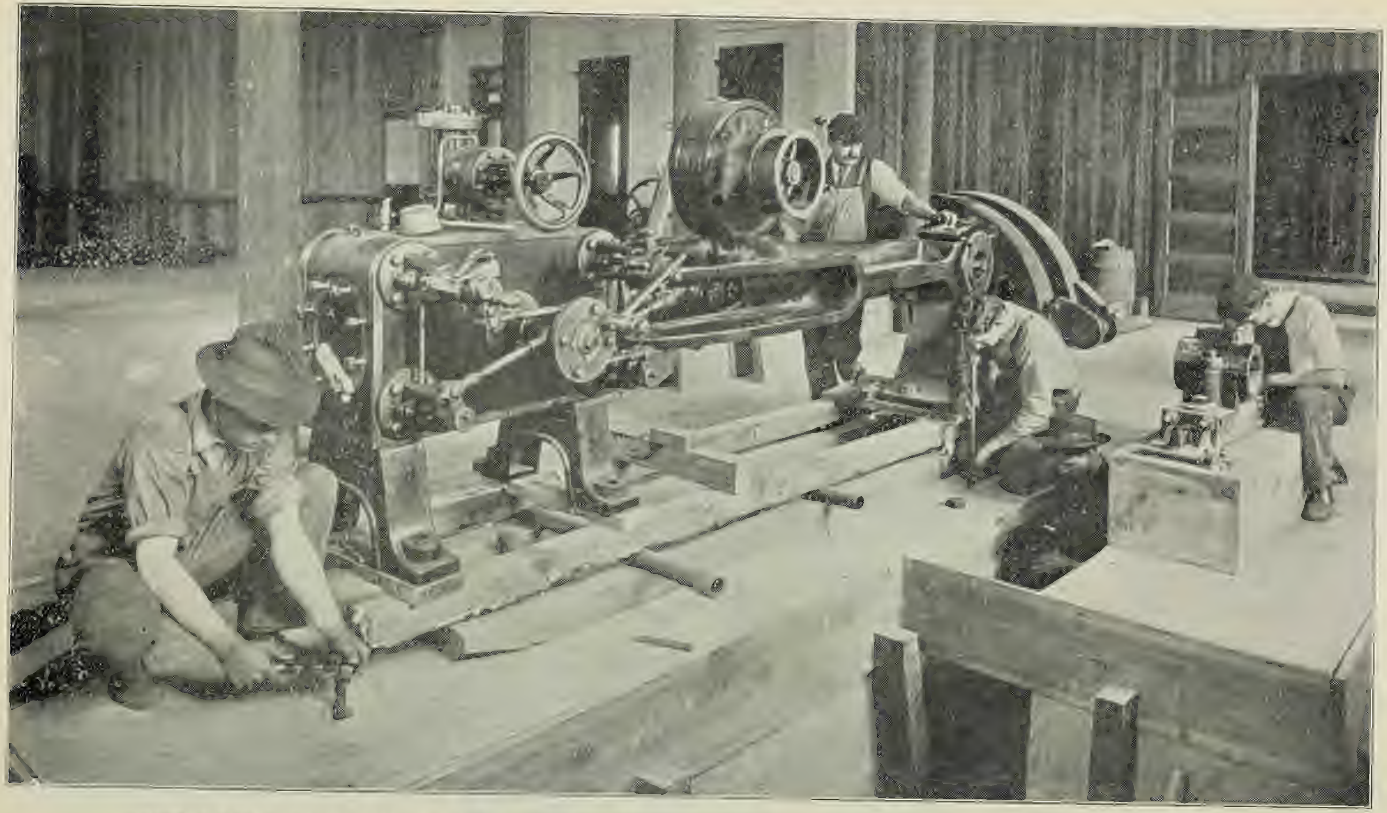
Recognizing the value of Athletic contests as a means of promoting bodily health and vigor, and also developing patriotism, discipline, self-confidence and courage, all forms of intercollegiate games, such at football, baseball, tennis, track and field sports, are encouraged by the faculty.

Special attention is paid to beginners who are desirous of taking athletic exercise. The campus in front of the school has been laid out with running tracks, jumping and pole vaulting paths, circles for shot, hammer, etc.

BASEBALL AND FOOTBALL.

Another large field has just been finished for baseball and football practice. These games are in charge of a competent coach, who devotes his whole time to these two branches of athletics.

All athletic sports are under control of the Faculty.



INSTALLING THE 80 H. P. CORLESS ENGINE, MAY 1, 1903.—EXPERIMENTAL LABORATORY.

COURSE OF STUDY.

(Numbers following subjects indicate hours per week.)

SUB-APPRENTICE YEAR.

(Same for all Courses.)

FIRST TERM.

October to January (12 weeks).

Mathematics (5).—Elements of Algebra.
Mathematics (5).—Plane Geometry.
English (5).—Grammar.
Shop-Work (8).

SECOND TERM.

January to April (12 weeks).

Mathematics (5).—Elements of Algebra.
Mathematics (5).—Plane Geometry.
English (5).—Grammar; English and American Classics.
Shop-Work (8).

THIRD TERM.

April to June 15 (12 weeks).

Mathematics (5).—Elements of Algebra completed.
Mathematics (5).—Solid Geometry.
English (5).—Grammar; English and American Classics.
Shop-Work (8).

MECHANICAL ENGINEERING.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry; Higher Algebra (completed.)

English (4).—Rhetoric; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (4).—Free-hand; Geometric; Linear; Perspective Sketching.
Shop-Work (12).

SECOND TERM.

Mathematics (5).—Trigonometry (completed.)
English (4).—Rhetoric; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (8).—Instrumental Linear; Descriptive Geometry Drawing.
Shop-Work (12).

THIRD TERM.

Mathematics (5).—Analytic Geometry.
English (4).—General History; Spelling; Readings; Essays.
Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Drawing (8).—Descriptive Geometry Drawing.
Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

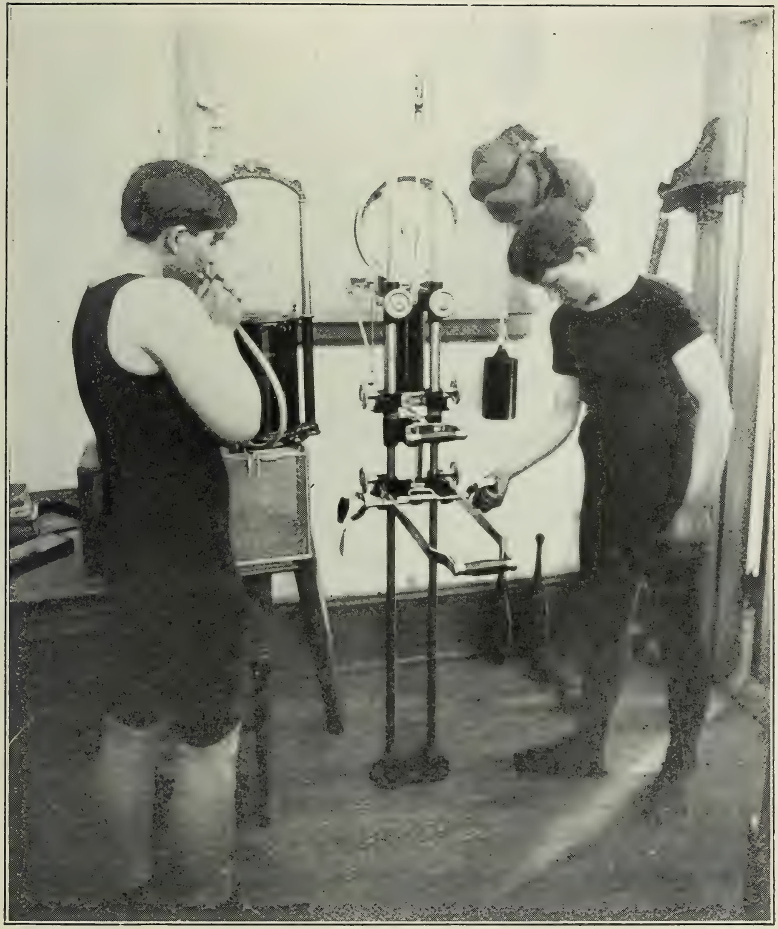
Mathematics (5).—Analytic Geometry.
English (4).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Mechanics.
Shop-Work (8).

SECOND TERM.

Mathematics (5).—Differential Calculus.
English (4).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.
Drawing (4).—Machine Drawing to Scale.
Physics (3).—Light and Heat.
Shop-Work (8).

THIRD TERM.

Mathematics (5).—Integral Calculus.
English (3).—English Literature; Readings; Essays.
Chemistry (4).—Qualitative Laboratory.



GYMNASIUM OFFICE, SHOWING SPIROMETER AND DYNAMOMETER.

The latter records over 100 strength tests, and is the only one south of the large Universities.

Drawing (4).—Machine Drawing to Scale.

Physics (6).—Heat and Electricity (3); Laboratory, Mechanics and Sound (3).

Surveying (4).—Use of Level, Compass and Transit.

Shop-Work (8).

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Equations.

English (3).—Political Economy; Readings; Essays.

Drawing (4).—Machine Drawing to Scale.

Engineering (3).—Kinematics and Mechanism.

Physics (7).—Electricity and Magnetism (4); Laboratory, Heat and Light (3).

SECOND TERM.

Mathematics (5).—Analytic Mechanics.

English (3).—Political Economy; Readings; Essays.

Chemistry (3).—Fuels and Metallurgy.

Drawing (4).—Spur, Bevel and Worm Gearing.

Engineering (3).—Mechanism; Materials; Machine-Design.

Physics (3).—Laboratory; Electricity and Magnetism.

Shop-Work (8).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.

English (3).—American Literature; Readings; Essays.

Chemistry (3).—Metallurgy.

Drawing (4).—Machine-Design.

Mechanical Engineering (3).—Mechanics of Materials.

Civil Engineering (3).—Hydraulics.

Experimental Engineering (3).—Work in Testing Materials.

Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

English (2).—English Literature; Criticisms; Debates; Readings.

Drawing (8).—Special Problems in Designing Machinery.

Mechanical Engineering (11).—Analytic Mechanics (4); Steam-

Engine and Other Prime Movers (4); Mechanics of Materials (3).

Experimental Engineering (3).—Work in Testing Materials.

Electrical Engineering (7).—Electric Power Distribution Laboratory (3).

Shop-Work (4).

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (7).—Steam-Engine and Other Prime Movers (4); Mechanics of Materials (3).

Experimental Engineering (3).—Steam Tests.

Shop-Work (8).

THIRD TERM.

English (2).—English Literature; Debates; Readings.

Drawing (8).—Graduate Work in Machine-Design.

Mechanical Engineering (11).—Steam and Gas Engines (4); Valve-Gears (2); Machine-Design, Text (3); Framed Structures (2).

Experimental Engineering (3).—Tests of Steam and Gas Engines.

Thesis-Work (4).

Shop-Work (8).

ELECTRICAL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

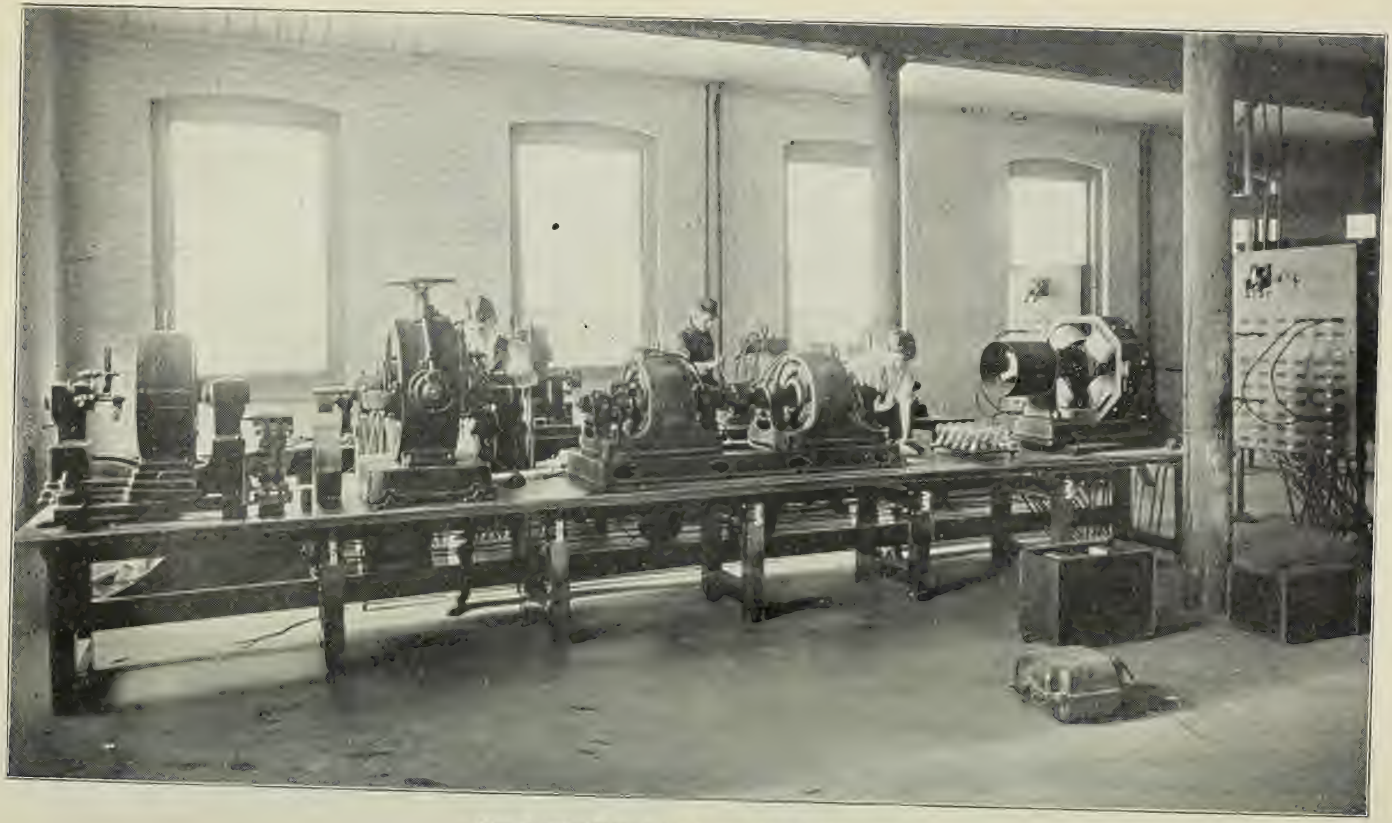
The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

Mathematics (5).—Differential Equations.

English (3).—Political Economy; Readings; Essays.



THE ELECTRICAL LABORATORY.

Physics (7).—Electricity and Magnetism (4); Laboratory, Heat and Light (3).

Engineering (3).—Kinematics and Mechanism.

Drawing (4).—Detail and Assembly Drawing.

Shop-Work (4).

SECOND TERM.

Mathematics (5).—Analytic Mechanics.

English (3).—Political Economy; Readings; Essays.

Chemistry (3).—Fuels and Metallurgy.

Physics (6).—Laboratory, Electricity and Magnetism.

Engineering (3).—Mechanism; Machine-Designs.

Drawing (4).—Gear and Cam Drawing.

Shop-Work (4).

THIRD TERM.

Mathematics (5).—Analytic Mechanics.

English (3).—American Literature; Readings; Essays.

Chemistry (3).—Metallurgy.

Electrical Engineering (5).—Direct Current Machinery.

Drawing (4).—Motion Diagrams.

Shop-Work (4).

SENIOR YEAR.

FIRST TERM.

English (2).—English Literature; Criticisms; Debates; Readings.

Electrical Engineering (10).—Telephone and Telegraph (2); Alternating Current Machinery (5); Electrical Laboratory (3).

Experimental Engineering (6).—Strength of Materials (3); Laboratory (3).

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Electrical Engineering (17).—Alternating Current Machinery (5); Electrical Design (6); Electrical Laboratory (3); Electro-Chemistry (3).

Experimental Engineering (6).—Steam-Engine (3); Laboratory (3).

THIRD TERM.

English (2).—English Literature; Debates; Readings.

Electrical Engineering (14).—Electrical Design (6); Electric Power Plants (5); Electrical Laboratory (3).

Mechanics (3).—Hydraulics.
Thesis.

CIVIL ENGINEERING.

APPRENTICE YEAR.

The same as the Mechanical Engineering Course.

JUNIOR YEAR.

The same as the Mechanical Engineering Course.

MIDDLE YEAR.

FIRST TERM.

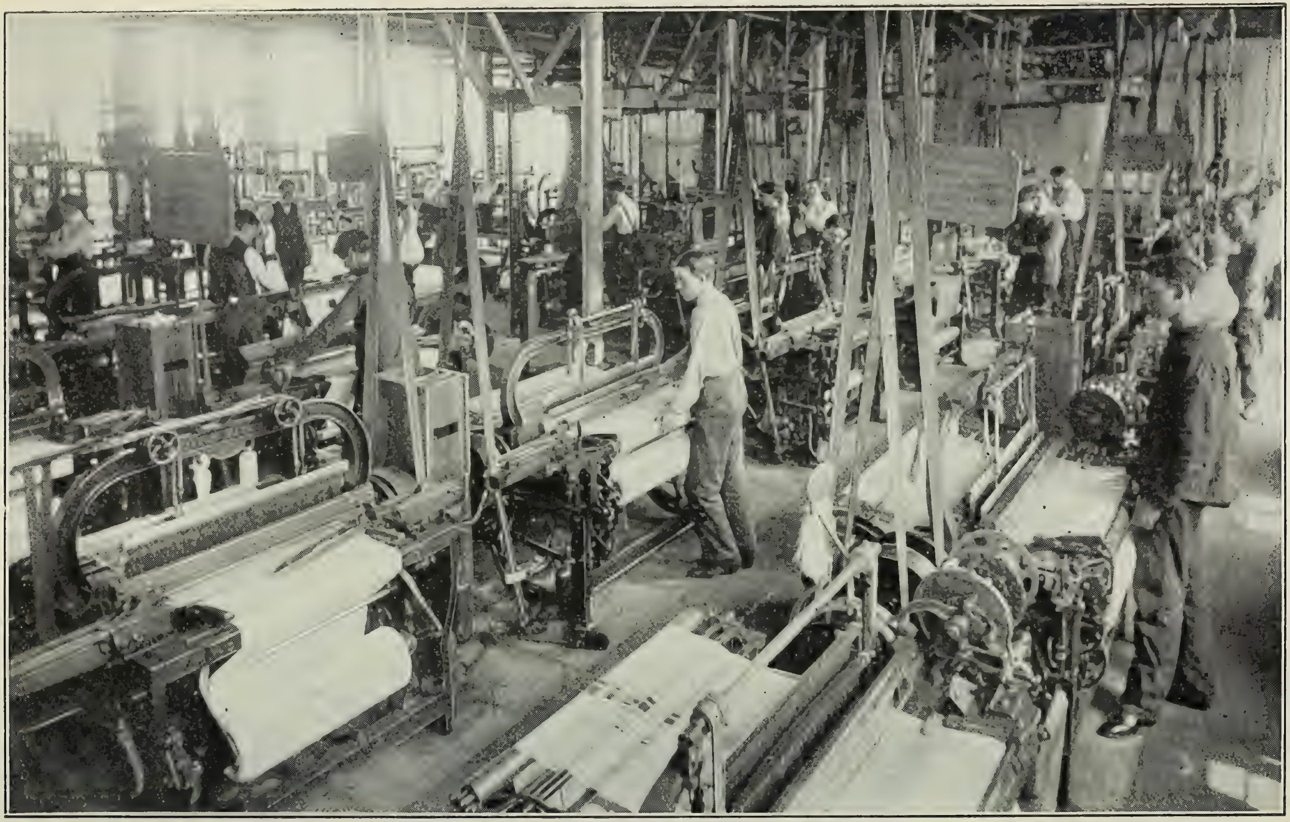
Mathematics (5).—Differential Equations.
English (3).—Political Economy; Readings; Essays.
Engineering (6).—Field Engineering (3); Railroad Surveying; Topographical Surveying (3).
Physics (7).—Electricity and Magnetism (4); Laboratory, Heat and Light (3).
Shop-Work (4).

SECOND TERM.

Mathematics (5).—Analytic Mechanics.
Chemistry (3).—Fuels and Metallurgy.
English (3).—Political Economy; Readings; Essays.
Engineering (7).—Location and Construction of Roads and Pavements (2); Stereotomy and Shades, Shadows and Perspective (2); Field Practice (3).
Physics (3).—Laboratory, Electricity and Magnetism.
Drawing (3).—Stereotomy.

THIRD TERM.

Mathematics (5).—Analytic Mechanics.
Chemistry (3).—Metallurgy.
English (3).—American Literature; Readings; Essays.
Engineering (6).—Mechanics of Materials (3); Hydraulics (3).
Drawing (3).—Shades, Shadows and Perspective.
Experimental Engineering (5).—Work in Testing Materials.



PRACTICE ON POWER LOOMS.

SENIOR YEAR.

FIRST TERM.

Mechanical Engineering((3).—Mechanics of Materials.

English (2).—English Literature; Criticism; Debates; Readings.

Civil Engineering (9).—Masonry Structures (4); Hydraulic Machinery (3); Topographical and Geodetic Surveying (2).

Experimental Engineering (3).—Materials Laboratory.

Drawing (4).—Topographical and Geodetic Mapping.

Shop-Work (4).

SECOND TERM.

English (2).—English Literature; Debates; Readings.

Civil Engineering (8).—Framed Structures (5); Municipal Engineering (3).

Experimental Engineering (6).—Steam-Engine (3); Steam-Engine Laboratory (3).

Drawing (4).—Designs of Structures.

Shop-Work (4).

THIRD TERM.

English (2).—English Literature; Debates; Readings.

Civil Engineering (8).—Municipal Engineering (3); Framed Structures (5).

Electrical Engineering (2).—Electrical Machines.

Experimental Engineering (3).—Hydraulic and Cement Laboratory.

Drawing (4).—Designs of Structures and Municipal Improvements.

Shop-Work (4).

Thesis.

TEXTILE ENGINEERING.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry; Higher Algebra (completed.)

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric Linear; Perspective Sketching.

Mill (8).—Carding (4); Weaving (4).

Shop-Work (8).—Wood Shop.

SECOND TERM.

Mathematics (5).—Trigonometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet and Orthographic Projections.

Mill (8).—Carding (4); Weaving (4).

Shop-Work (4).—Blacksmith Shop.

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—General History; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric, Cabinet and Orthographic Projections.

Mill (8).—Carding (4); Weaving (4).

Shop-Work (4).—Foundry.

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (4).—Qualitative Laboratory.

English (4).—English Literature; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

Designing (4).

Mill (8).—Carding and Spinning (4); Weaving (4).

SECOND TERM.

Mathematics (5).—Differential Calculus.

Chemistry (4).—Qualitative Laboratory.

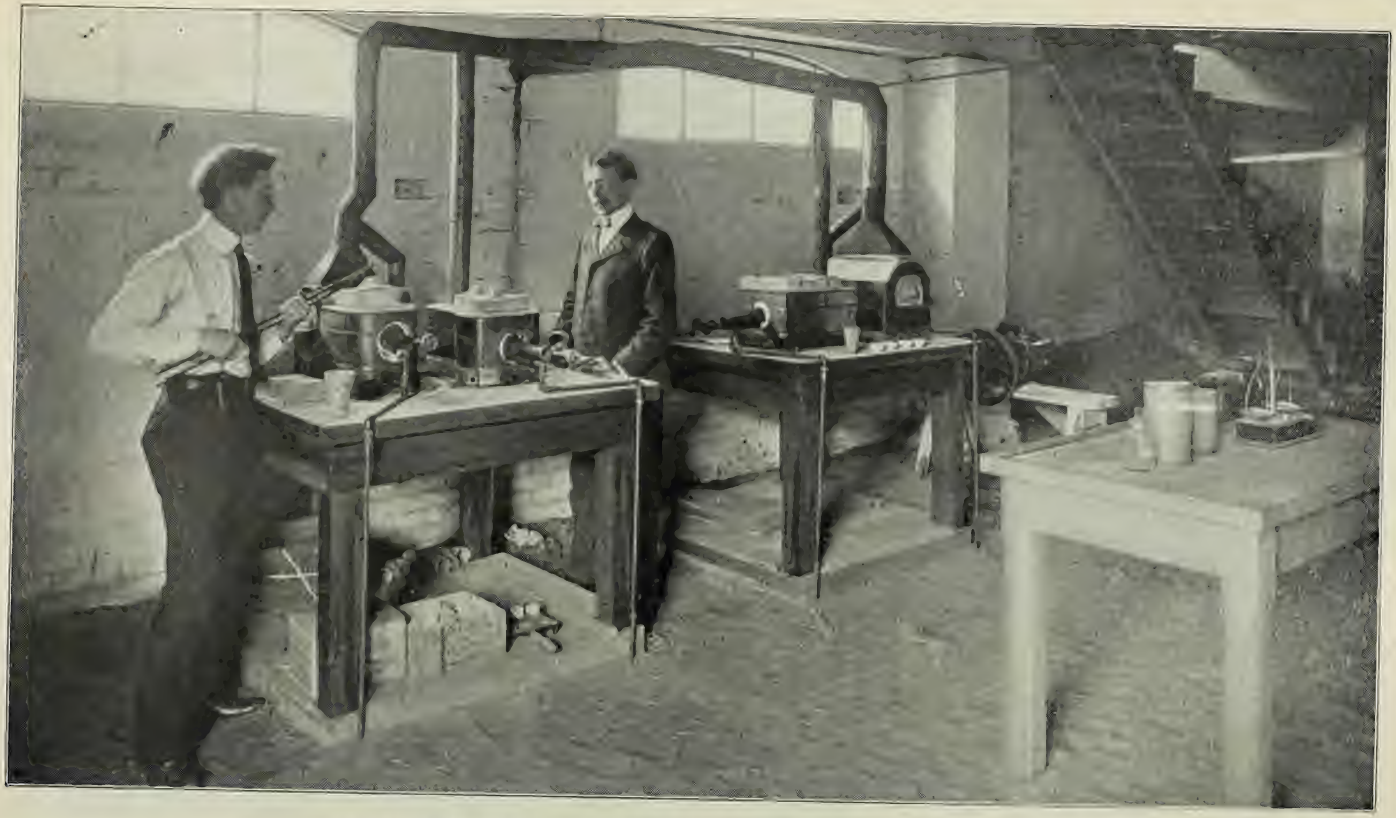
English (4).—English Literature; Readings; Essays.

Physics (3).—Heat, Sound and Light.

Drawing (4).—Machine Drawing to Scale.

Designing (4).

Mill (8).—Carding and Spinning (4); Weaving (4).



ASSAYING LABORATORY, DEPARTMENT OF CHEMISTRY.

THIRD TERM.

Mathematics (5).—Integral Calculus.
Chemistry (4).—Qualitative Laboratory.
English (3).—English Literature; Readings; Essays.
Physics (3).—Electricity and Magnetism.
Drawing (4).—Machine Drawing to Scale.
Designing (4).
Mill (8).—Weaving (4); Carding (4).

MIDDLE YEAR.

FIRST TERM.

Chemistry (3).—Organic Chemistry.
English (3).—Political Economy; Readings; Essays.
Mechanism (3).
Drawing (4).—Detail and Assembly Drawing Textile Machines to Scale.
Desiging (8).—Fabric Structure and Designing.
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (8).—Carding and Spinning (4); Weaving (4).

SECOND TERM.

Chemistry (3).—Organic Chemistry.
English (3).—Political Economy; Readings; Essays.
Mechanism (3).
Drawing (4).—Gears, Cams and Motion Diagrams.
Desiging (8).—Fabric Structure and Designing.
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (8).—Carding and Spinning (4); Weaving (4).

THIRD TERM.

Chemistry (3).—Organic Chemistry.
English (3).—American Literature; Readings; Essays.
Mechanics (5).
Drawing (4).—Detail and Assembly Drawings.
Designing (4).—Fabric Structure and Analysis.
Carding (3).—Recitations.
Mill (12).—Carding and Spinning (4); Hand Weaving (8).

SENIOR YEAR.

FIRST TERM.

Designing (8)—Jacquard Designing.
Mechanics (7).—Strength of Materials, Recitations (4); Laboratory (3).
Dyeing (6).—Lectures (2); Dyeing Laboratory (4).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (8).—Carding and Spinning (4); Weaving (4).
Shop-Work (4).—Machine-shop.

SECOND TERM.

Mechanics (6).—Steam-Engine and Boilers, recitations (3); Laboratory (3).
Designing (8)—Jacquard Designing.
Dyeing (6).—Lectures (2); Dyeing Laboratory (4).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (8).—Carding and Spinning (4); Weaving (4).
Shop-Work (4).—Machine-shop.

THIRD TERM.

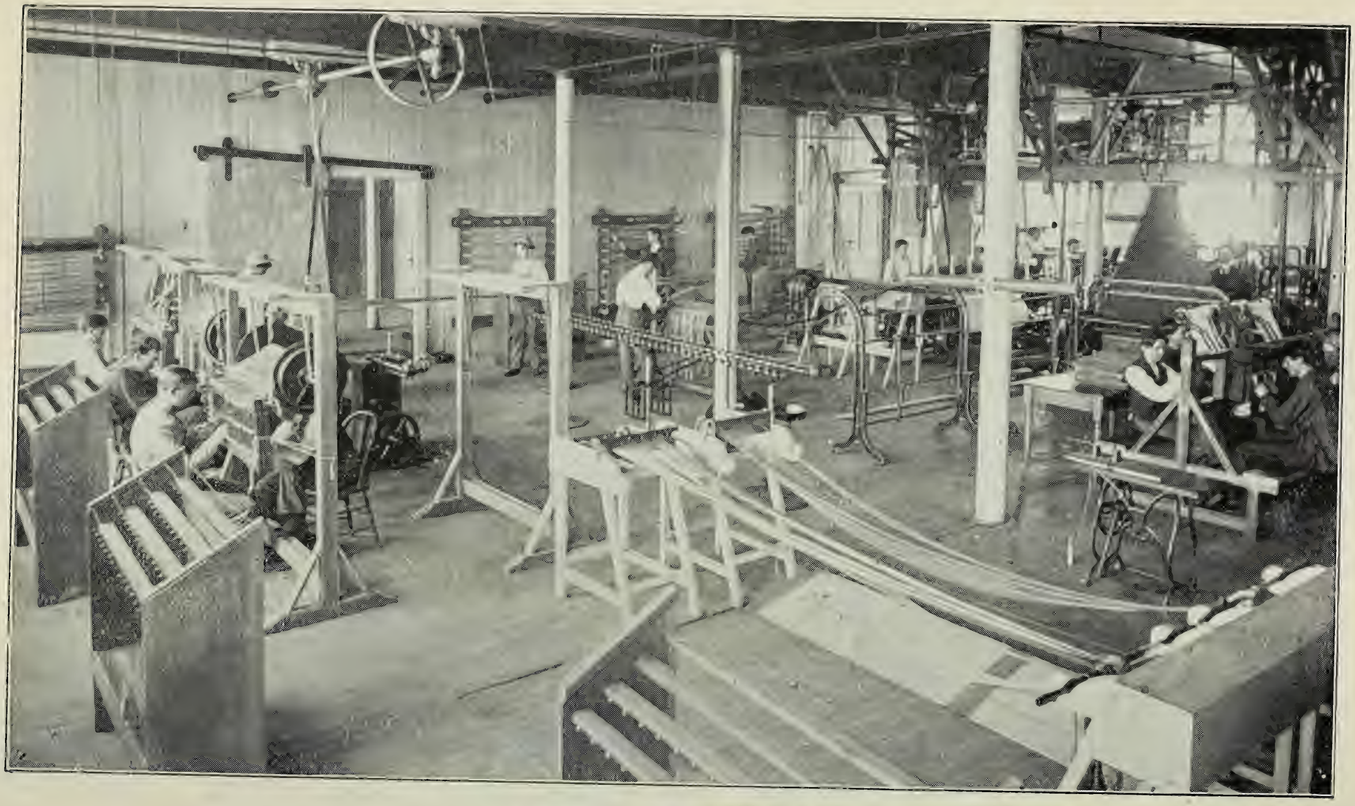
Mechanics (4).—Power Transmission (1); Power Laboratory (3); Superintendence (3); Lectures.
Designing (8).—Jacquard Designing and Analysis.
Dyeing (6).—Lectures (2); Dyeing Laboratory (4).
Electricity (2).
Carding (3).—Recitations.
Mill (8).—Carding and Spinning (4); Weaving (4).
Shop-Work (4).—Machine-shop.

ENGINEERING CHEMISTRY.

APPRENTICE YEAR.

FIRST TERM.

Mathematics (5).—Solid Geometry; Higher Algebra (completed).



VIEW IN WEAVE ROOM

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (4).—Free-Hand; Geometric; Linear; Perspective Sketching.

Shop-Work (12).

SECOND TERM.

Mathematics (5).—Trigonometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—Rhetoric; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

THIRD TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

English (4).—General History; Spelling; Readings; Essays.

Drawing (8).—Instrumental Linear; Geometric; Cabinet and Orthographic Projections.

Shop-Work (12).

JUNIOR YEAR.

FIRST TERM.

Mathematics (5).—Analytic Geometry.

Chemistry (13).—Advanced Inorganic Chemistry (1); Qualitative Laboratory (12).

English (4).—English Literature; Readings; Essays.

Physics (3).—Mechanics.

Drawing (4).—Machine Drawing to Scale.

Shop-Work (4).—Smith-shop.

SECOND TERM.

Mathematics (5).—Differential Calculus.

Chemistry (13).—Advanced Inorganic Chemistry (1); Qualitative (8); Quantitative (4); General Methods.

English (4).—English Literature; Readings; Essays.

Physics (3).—Heat, Sound and Light.

Drawing (4).—Machine Drawing to Scale.

Shop-Work (4).—Machine-shop.

THIRD TERM.

Mathematics (5).—Integral Calculus.

Chemistry (17).—Advanced Inorganic Chemistry (1); Qualitative (4); Quantitative (12); General Methods.

English (3).—English Literature; Readings; Essays.

Physics (3).—Electricity and Magnetism.

Physics Laboratory (3).—Mechanics and Sound.

Drawing (4).—Drawing to Technological Charts.

Shop-Work (4).—Machine-shop.

MIDDLE YEAR.

FIRST TERM.

Chemistry (12).—Organic Chemistry (3); Organic Laboratory (4); Quantitative (6).

English (3).—Political Economy; Readings; Essays.

Physics (4).—Electricity and Magnetism.

Physics Laboratory (3).—Heat and Light.

Mechanism (3).

Shop-Work (4).

SECOND TERM.

Chemistry (17).—Organic Chemistry (3); Organic Laboratory (2); Quantitative (12).

English (3).—Political Economy; Readings; Essays.

Physics Laboratory (3).—Electricity and Magnetism.

Mechanism (3).

Metallurgy (3).

Shop-Work (4).

THIRD TERM.

Chemistry (21).—Organic Chemistry (3); Organic Laboratory (4); Quantitative (14).

English (3).—American Literature; Readings; Essays.

Metallurgy (3).

Mechanics (5).—Analytic Mechanics.

SENIOR YEAR.

FIRST TERM.

Chemistry (17).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (12).

English (2).—English Literature; Criticisms ; Debates; Readings.

Engineering (7).—Strength of Materials (4); Experimental Engineering (3).

Dyeing (6).—Lectures (2); Laboratory (4).

SECOND TERM.

Chemistry (21).—Industrial Chemistry (3); Physical Chemistry (2); Quantitative (16).

English (2).—English Literature; Debates; Readings.

Engineering (6).—Steam-Engine and Boilers (3); Power Laboratory (3).

Dyeing (6).—Lectures (2); Laboratory (4).

THIRD TERM.

Chemistry (5).—Industrial Chemistry (3); Physical Chemistry (2).

English (2).—English Literature; Debates; Readings.

Electricity (2).—Electrical Machinery.

Dyeing (6).—Lectures (2); Laboratory (4).

Thesis.

SPECIAL TEXTILE COURSE.

FIRST YEAR.

FIRST TERM.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (8).—Wood-shop.

SECOND TERM.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).

Designing (4).

Carding (3).—Recitations.

Weaving (2).—Recitations.

Mill (16).—Carding and Spinning (8); Weaving (8).

Shop (8).—Smith-shop.

THIRD TERM.

Chemistry (5).—Inorganic Chemistry (3); Laboratory (2).
Designing (4).
Carding (3).—Recitations.
Cloth Calculations (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop (8).—Foundry.

SECOND YEAR.

FIRST TERM.

Dyeing (6).—Lectures (2); Laboratory (4).
Designing (8).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop (4).—Machine-shop.

SECOND TERM.

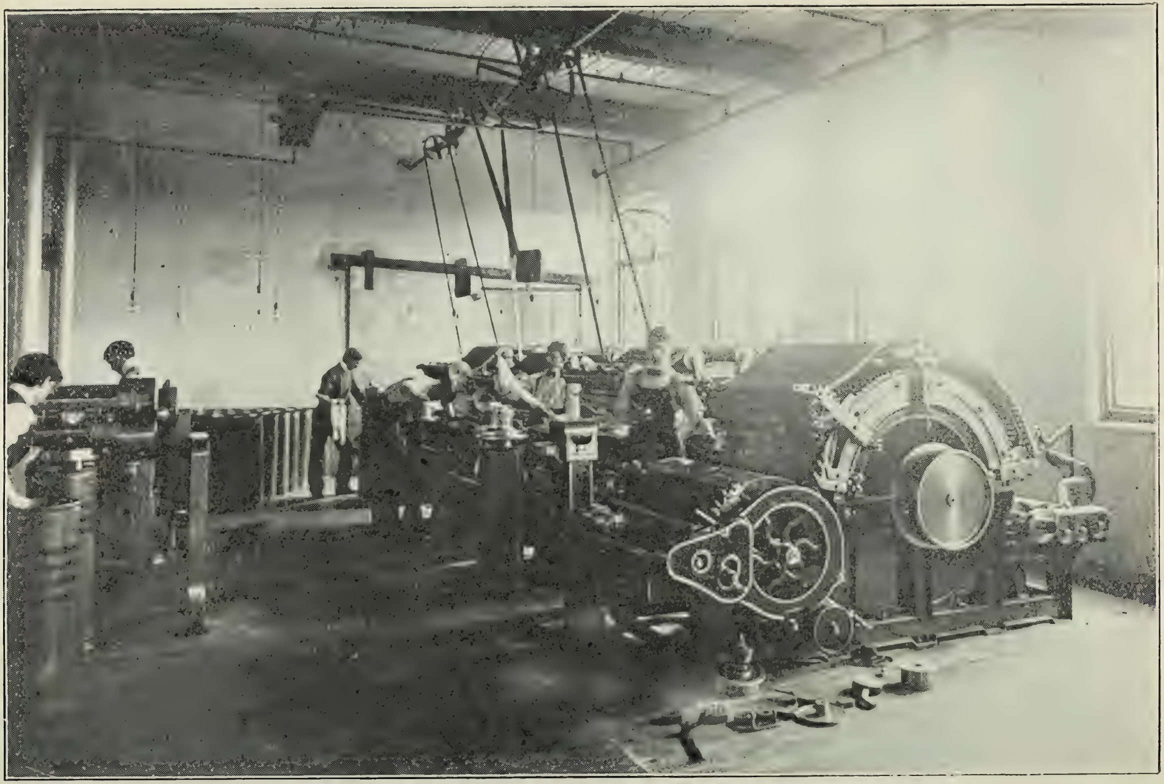
Dyeing (6).—Lectures (2); Laboratory (4).
Designing (8).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop-Work (4).—Machine-shop.

THIRD TERM.

Dyeing (6).—Lectures (2); Laboratory (4).
Designing (8).—Fabric Analysis (4); Designing (4).
Carding (3).—Recitations.
Weaving (2).—Recitations.
Mill (16).—Carding and Spinning (8); Weaving (8).
Shop-Work (4).—Machine-shop.

HISTORY AND GENERAL INFORMATION.

During the session of the Legislature of Georgia in 1882, a committee of ten was appointed to visit technical institutions of the North and report on the advisability of establishing such a school in Georgia.



PRACTICE ON THE FOUR CARDS.

THE
JOHN CRERAR
LIBRARY

The committee made its report at the summer session of the Legislature in 1883, recommending the establishment of the school. A bill was introduced for that purpose, and was lost, receiving only sixty-five votes.

The people of the State were appealed to by the supporters of the measure, and it was the issue in many counties in the election of members of the next Legislature. The State Agricultural Society recommended it, and many other prominent organizations of the State pressed the matter upon the attention of the people.

The bill was introduced again by Hon. N. E. Harris, and was passed at the summer session, October 16, 1885, appropriating $65,000 to found the school.

The first Board of Commissioners was appointed by Governor McDaniel, on or about January 1, 1886, as follows: N. E. Harris, S. M. Inman, E. R. Hodgson, O. S. Porter, and Columbus Heard. The board organized and selected N. E. Harris, chairman, and S. M. Inman, secretary and treasurer.

The act provided for competitive bids for the location of the school from various sections of the State, and the commission, after considering propositions, located the school in Atlanta.

During the summer of 1888, the buildings and part of the equipment being ready, a faculty was elected, and academic and shop-work began October 3 of that year.

By act of the Legislature, December 9, 1890, two other trustees were added to the local board of trustees, and the power to grant diplomas and establish rules and regulations was also confered on the local board.

In March, 1891, a Sub-Apprentice Class was established for the purpose of preparing those students for the Apprentice Class whose opportunities for advancement in studies had been limited.

On April 21, 1892, between two and five o'clock a.m., the school shops were totally destroyed by fire. With the insurance on the building and machinery, and additional appropriation made by the Legislature, the building and machinery were at once replaced, and the result of the misfortune was, in the end, most beneficial, as both building and equipment are superior to what were destroyed.

The leading object of the school is to teach the principles of science, especially those which relate to the mechanic, industrial and textile arts.

Georgia School of Technology.

The school offers an education of high grade, founded on Mathematics, the English Language, Physical Sciences and Drawing, while it gives such familiarity to some industrial pursuits as will enable the graduate to earn a living.

In December, 1896, the Legislature appropriated $20,000 for the equipment of a Department of Electrical Science ($5,000), and for building a dormitory ($15,000). The dormitory was built and first occupied by students at the opening of the fall session of 1897.

The Local Board of Trustees met in December, 1896, and established the degree of Electrical and Civil Engineering.

In December, 1897, the Legislature appropriated $10,000 for the establishment of a Textile Department, provided that the friends of the school contribute $10,000 additional in money and machinery.

During the year 1898 nearly $20,000 worth of machinery was donated to the school, and about $13,500 in cash. Experienced mill architects were employed to make plans for the Textile building described on page 82. The regular course in Textiles, both in theory and in practice, began in the fall of 1899.

Mr. Aaron French, of Pittsburg, Pa., became interested in the school in the summer of 1897, and when he was asked to co-operate in meeting the conditions imposed by the Legislature, he made several donations. The first, $2,600, was given without any condition. The second, $3,000, was given provided the friends of the school raise $3,000 additional.

The city of Atlanta promptly met this condition by appropriating the necessary $3,000 in July, 1898.

Mr. French's third donation amounted to $3,000, and enabled the trustees to make material increase in the size of the Textile building.

Other gifts of the school have been as follows:

From Mr. J. W. Rucker for maintenance, in June, 1899. .	$ 3,000
From Mr. Aaron French for maintenance, in June, 1899.	3,000
From Mr. Aaron French for scholarship, in July, 1898. .	500
From Mr. Aaron French, for scholarship, in December, 1899.	500
From Mr. Aaron French for maintenance, in January, 1900	3,500

In 1900 the following:

From James Swann for dormitory	$21,500
From other citizens and friends	13,500
From Mr. Aaron French for scholarship in 1901........	500

In June, 1902, the General Education Board offered to give the school $5,000 for equipment and $2,500 two successive years for maintenance, provided friends of the school would donate $10,000 additional.

The friends of the school responded by giving $12,910.00 in cash, as listed in the last catalogue.

In 1903, the will of Mr. James Swann provided that the school should receive $10,000 in cash upon the settlement of his estate.

In June, 1903, Mr. Wm. R. Hearst, of New York, gave the school $5,000 in cash for such needs as the trustees might see fit to supply.

THE A. FRENCH TEXTILE SCHOOL.

The estalishment of this department is no longer a new feature in education in the State of Georgia, and its superior equipment for instruction in the manufacture of all grades of cotton goods is expected to promote interest in manufacturing.

It will be noticed in the Textile course of study that shop training, chemistry, dyeing and engineering are included.

APPROPRIATIONS.

The school receives $45,000 per annum from the State, and $2,500 per annum from the city of Atlanta. During the session of the Legislature in 1902, the maintenance fund was increased from $40,000 to $45,000 per annum.

In December, 1900, the Legislature appropriated $10,000 for an electrical building, and $6,000 for additional textile equipment, with the proviso that these amounts would not be available until the friends of the school should furnish $25,000 in cash donations. The condition was met as stated above.

BUILDINGS.

The school occupies a beautiful site in a campus of nine acres, lying at the junction of North avenue and Cherry streets, easily accessible by street-car lines on Marietta, West Peachtree and Luckie streets. The Academic building is a splendid edifice of brick, trimmed with granite and terra-cotta, slate roof. It has one hundred and thirty feet front, is one hundred and twenty deep, and is four stories above basement story. It contains ample accommodations in halls, offices, apparatus-rooms, recitation and lecture-rooms, library and chapel.

The workshops are also of brick, the main shop building being two hundred and fifty feet long by eighty wide, and two stories, with large basements. It is admirably designed with reference to its use, and affords ample space for the machine and wood-shops and the foundry. In the basement are complete equipment of lavatories and lockers for students' clothes. The smith-shop, boilers, and cupolas for foundry are located outside the main shop building, thus reducing to a minimum all chances of another disaster by fire.

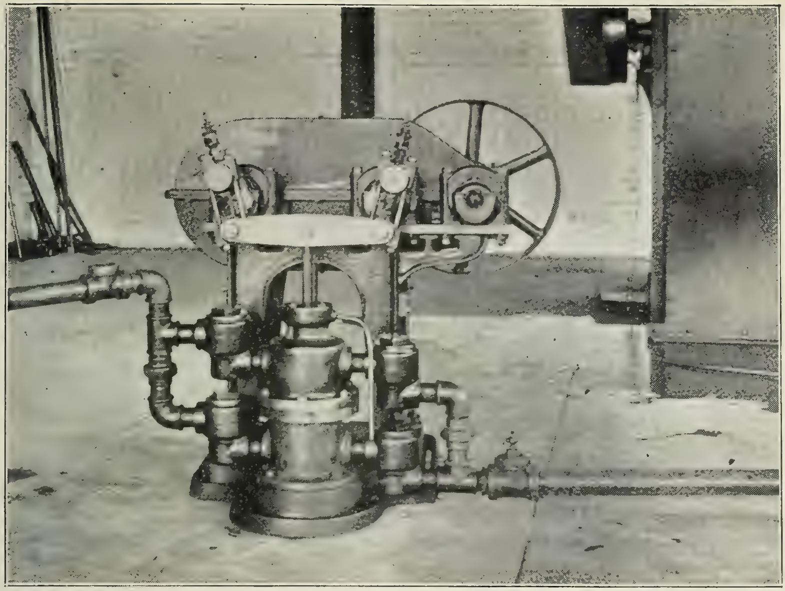
During 1898 a new smith-shop was built. It contains 21 forges, a vise-room, and office, and is well lighted by large windows, which extend entirely around the building.

The new Textile building was completed in 1898, and is 150 by 70 feet, with three floors for the accommodation of machinery, class-rooms, etc. It was designed by Lockwood, Greene & Co., of Boston, and fulfills every requirement of a modern cotton mill.

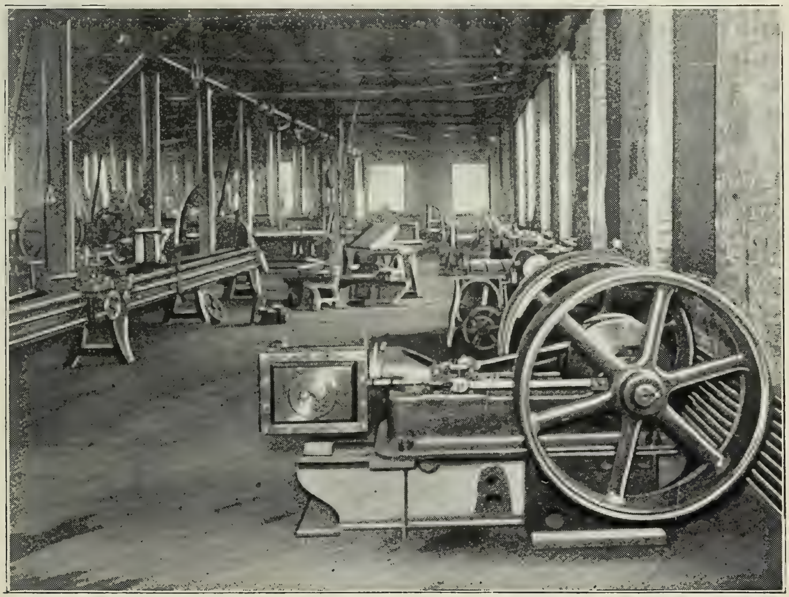
The Dormitory buildings consist of the Janie Austell Swann Dormitories, containing fifty rooms for students; the Knowles Dormitory, containing thirty-six rooms for students, gymnasium, shower-baths, and dining-room, and two smaller dormitories of eight rooms each.

THE NEW BUILDINGS.

The Janie Austell Swann Dormitories, costing $30,000, for the accommodation of 100 students, has been completed. It is a handsome structure of three stories, 142 by 54 feet, and finished in pressed brick and stone, with monumental pillars at the front entrance. It is heated by the blower system, lighted with elec-



POWER FEED PUMP. CONSTRUCTED BY STUDENTS.



50-H. P. ENGINE, NOW IN USE, BUILT BY STUDENTS.

THE
JOHN CRERAR
LIBRARY

tricity, and contains ample halls, reception rooms, etc. The building is a memorial erected by Mr. James Swann to his wife.

The new Electrical building, costing $15,000, has been completed. It is three stories in height, 90x82 feet in plan, and contains the Mechanical and Experimental Laboratory, the Electrical Laboratory, Drawing-rooms, Blue-print room and class-rooms.

A small frame structure has been built on the school property, isolated from other buildings, for the detention and treatment of students who may have contagious diseases.

EQUIPMENT.

The Mechanical, Electrical, Chemical, Experimental and Physical laboratories have been fitted up with reference to practical work, and such additions will be made from time to time as may be required for experimental research. The apparatus and appliances are of the newest and best forms, and will be increased as occasion may demand.

The workshops have been equipped with machinery and tools from the best makers, and of the latest pattern, at a cost of over twenty-five thousand dollars. In pursuance of the fundamental idea of giving the student access to the best machinery and experimental knowledge of the best methods of mechanical work, the Trustees have put the Mechanical Department on a footing with the most improved and complete shops in the country, and hardly any process requiring fine material and accurate workmanship is beyond its capacity.

The shops of the institution have already won an enviable reputation for the quality of their iron and brass castings, perfection in gear-cutting, and the beauty and variety of their wood and other work.

The Textile Building has an unsurpassed equipment of cotton manufacturing machinery, listed elsewhere.

DEGREES CONFERRED.

The degrees conferred are as follows: Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Textile Engineering, and Bachelor of Science in Engineering Chemistry.

MEDALS.

A medal is awarded annually by the New England Manufacturers' Association to the Textile graduate who shows highest excellence in his work.

A handsome gold medal is awarded annually by Mr. Walter P. Andrews, of Atlanta, for the graduate who has made the highest record in pure Mathematics.

A medal is awarded annually by the editor of the magazine "Cotton," Atlanta, Ga., to the Textile graduate who shows highest excellence in his work.

SESSIONS AND TERMS.

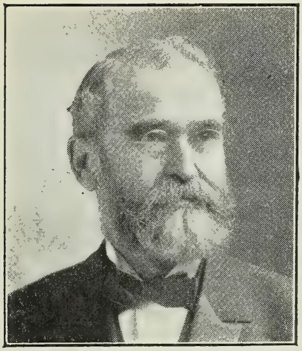
The session begins the last Wednesday in September, and ends the Thursday before the fourth Wednesday in June. It will be divided into three terms of twelve weeks each. There will be an intermission of one week, embracing Christmas.

All students are required, and all applicants are requested to be present at the opening hour of each session, as punctuality operates to their advantage in many ways.

SUB-APPRENTICE CLASS.

Applicants for this class must be at least sixteen years old and pass a satisfactory examination in arithmetic, including common and decimal fractions, compound numbers, percentage, ratio, proportion, alligation, square root, cube root and mensuration.

Students in this class will have access to the shops and will be under the same general government as the other classes as to sessions, fees, rules, age limit, etc.



MR. AARON FRENCH.

THE A. FRENCH SCHOLARSHIPS.

Mr. Aaron French, of Pittsburg, Pa., gave three scholarships to the Georgia School of Technology, which are self-perpetuating, in that the beneficiary refunds the money after graduation in payment of small monthly notes without interest.

The conditions under which the scholarships are awarded are as follows:

1. The applicant must be at least sixteen years of age.
2. No one is eligible whose family pays taxes on more than $3,000 worth of property. (Affidavits from city and county tax-collectors to this effect are required.)
3. The scholarships are to be awarded by competitive examinations in the subjects for entrance to the Apprentice Class. (See page 87.)

SCHOLARSHIP NUMBER 1.

The competitive examination for scholarship number one was held at the School in the fall of 1898, and was won by Mr. W. E. Klein, of Atlanta. He graduated 1902, and in the fall of that year, September 24, the scholarship was won by Mr. W C. Appleby, of Winder, Ga.

SCHOLARSHIP NUMBER 2.

The competitive examination for scholarship number two was held at the School Wednesday, September 26, 1900, under the conditions named above, and was won by Mr. G. A. Harbour, of Atlanta. He will graduate in 1904, and another competition will take place September 28, of that year.

SCHOLARSHIP NUMBER 3.

The competitive examination for scholarship number three was held at the School September 24, 1902, and was won by Mr. Arnold Wells, of Belton, Texas.

The Scholarships Are Limited to no State or Section of the Country.

The winners of these scholarships will be furnished funds at such times as the President may think necessary for expenses, books, fees, etc., but not over $125 00 will be furnished each year.

No formal application for entrance into the competitive examination is necessary. The presence of the applicant at the School at 9 a. m., on the opening day of the fall term, will entitle him to admission to the examinations.

APPRENTICE CLASS.

Candidates for admission to the Apprentice Class must be at least sixteen years old, must be of good moral character, and must pass examinations in the following subjects:

Algebra, Elements Complete.—Addition, subtraction, multiplication, division, factoring, greatest common divisor, least common multiple, simple equations, fractions, simultaneous equations of the first degree, involution, evolution, fractional and negative exponents, quadratics and radicals, simultaneous equations of the second degree, logarithms, permutations and combinations, binomial theorem, etc.

Geometry.—Plane and solid to the sphere.

English.—English Grammar and familiarity with Southern Poets, Silas Marner, Lady of the Lake, Rip Van Winkle and the Legend of Sleepy Hollow.

Candidates for admission to advanced classes must be sixteen years of age, and must show by examination or a college certificate that they are qualified to enter the class for which they apply.

EXAMINATIONS.

While students may enter at any time and be examined on entrance, two general entrance examinations will be held; one at the time of the final examinations for the school session, about June 10, and the other at the opening of the fall term, about September 30. Applicants for admission to Apprentice and higher classes will be admitted to either or both of these examinations.

Final examinations are held at the end of each term. Students are liable to be dropped from the roll of their class at any examination when they do not meet the requirements, and at any time when they neglect their studies and fall hopelessly behind their classes. No fees or tuition are refunded under such circumstances. All examinations are written.

GOOD RECORD CERTIFICATE.

All new students must present a certificate from the last school they attended, stating they left in good standing with the authorities.

REPORTS.

Reports of the standing of students are issued at the close of each term.

Bulletin-boards are placed in the halls, and upon these are posted each month the grading of students as ascertained by the monthly examinations.

Whenever a student is deficient in any study or department at the close of any month a report of such fact is sent to his parents.

LIBRARY AND READING-ROOM.

The school is now supplied with a well-organized and well-selected library of nearly 3,000 volumes. This acquisition is due largely to the generosity of local friends who have responded to appeals for aid. In addition to the donations in cash and in books already received, the further contributions constantly being made promise well for the future growth of the library. Valuable literary and scientific reference-books have been acquired, and departments established in fiction, history, biography, travel, philosophy and natural science.

The library is in charge of a competent and thoroughly-trained librarian. All books and pamphlets as soon as received are classified and catalogued in accordance with the most approved card system.

Library hours daily are from 8:30 a.m. to 5:00 p.m., excepting Saturdays, when the closing hour is 2:00 p.m.

There has been established in connection with the library a handsomely furnished and well-equipped reading-room, supplied

THE LIBRARY.

CRERAR

with some forty of the leading papers and periodicals of this country and England. Additions to the reading-matter will be made from time to time.

TUITION AND FEES.

Each county in the State is entitled to six free scholarships.

These scholarships will be awarded on the ground of excellence in character and preparation, and time of entrance.

The amount of tuition charged to the excess of six from a county of this State is $25.00 per annual session.

Residents of other States pay a tuition fee of $100.00 per year in addition to the fees of $20.00 and $5.00 mentioned below.

Every student, of whatever place of residence, pays an annual fee of $20.00 to cover contingent expenses. Half of this amount is payable on entrance and the remainder on or before the first Saturday after February 10.

A contingent fee of $5.00 will be required to be deposited with the treasurer on entrance, to cover injury done college buildings or furniture, which sum will be returned to the student on leaving, if not forfeited.

All students will be required to deposit at the beginning of the fall term—

$10.00 of the annual fee;
$5.00 damage fee, unless already deposited;
$12.50 of the tuition fee, if subject to tuition.

And on or before the first Saturday after February 10—

$10.00 of the annual fee;
$12.50 of the tuition fee, if subject to tuition.

Residents of other States are subject to the above requirements, substituting $50.00 for the amount of the tuition fee per half year.

Until the above requirements are complied with no student will be allowed to participate in the duties and recitations of his class.

The student is advised to defer the purchase of drawing instruments and materials until he can have the direction of the professors in their selection.

Text-books and stationery can be purchased from the Quartermaster on good terms. The student is advised, however, to bring such scientific books as he may possess.

No fees are refunded unless a student leaves in good standing, through no fault of his own, and on the advice of the faculty.

No fees are refunded to students who are required to leave for deficiency in shop or mill work or studies.

DORMITORIES.

All students in the Apprentice and Sub-Apprentice classes who do not reside with their parents or guardians are required to board in the school dormitories.

This regulation was passed by the Board of Trustees of the school April 2, 1902, after a careful examination of the advantages and protection afforded by the dormitories to students of the two younger classes. Students of the higher classes will be accommodated in the dormitories also, but their residence there is not compulsory.

BOARD AND EXPENSES.

The school is provided with dormitory accommodations for two hundred students. The rooms are well lighted and ventilated. Hot and cold shower-baths are accessible to all students, in a new and well-heated bathroom.

The price of board, including laundry, fuel and lights, is $13.50 per month, payable in advance.

Board is not refunded to students unless they have been absent over ten days.

All students who desire places in the dormitories must write and secure them before reporting for duty, as the dormitories do not accommodate more than one-half of the students who are in the institution.

Students who board in the dormitories are required to furnish the following articles: One pillow, three pillow-cases, four sheets, blankets or comforts, six towels, and any other small and

RECITATION IN CARDING.

portable articles needed about their rooms. The articles named should be brought from home. The school furnishes with each room: Beds (single three-quarter width), mattresses, springs, wardrobe or closet, washstand, bureau and table. It is intended that only two students shall occupy one room.

With the information given above, students may easily come to Atlanta without preliminary correspondence and be located, at least temporarily, a few hours after their arrival.

Every member of the Apprentice class must provide himself with gymnasium suit and shoes, the total cost of which is about $2.00.

Each student should have two suits of overalls, costing about $1.00 each.

For prices of drawing materials and drawing instruments, (Apprentice class), see page 26.

The cost of books, etc., in the Apprentice year is large on account of the purchase of drawing instruments.

DISCIPLINE AND DORMITORY REGULATIONS.

The students of the school have a record for good conduct unsurpassed by any corps in the country.

They are required to obey but few regulations, the authorities bearing in mind the development and best interest of the student-body.

Every man is expected to conduct himself as a gentleman. When he fails in this, and convinces the authorities that he has not come to work, his parents are requested to withdraw him.

Special Textile students and students having but few lessons to prepare will not be admitted to the dormitories.

LEAVES AND PERMITS.

(1) Students must not leave the school property without permission, except during hours designated by special regulations.

(2) Requests for permission to be off limits must be submitted

in writing to the Professor in charge before 8:00 a.m., except on Sundays, then before 9:00 a.m., who will pass upon them and return through the mail.

(3) Students will state in their request for leave of absence the hours desired for departure and return, and where they wish to go, giving name and street number.

(4) Students having leaves of absence must report their departure and return to the Professor in charge, who will record times of same on student's written permit.

(5) No one has authority to grant leaves of absence except the President, Professor in charge, or some one delegated with authority to act in their absence. But any professor or officer of the institution may record time of departure and return.

(6) Leaving before the hour of departure, or returning after the leave expires, will be punished by confinement, expulsion from the dormitory, or dismissal from the school.

(7) No leaves will be granted for theaters, or during the week for religious exercises, without written requests from students' parents.

(8) Getting a leave of absence for one place and then going to another will be regarded as a false statement, and is punishable by expulsion from the school.

(9) Students will be granted leave of absence on Saturdays from conclusion of inspection to call to quarters, and on Sundays from breakfast to call to quarters.

(10) Students will be allowed to exercise on their wheels during the day without permits.

(11) Students attending fraternity meetings must delegate some man from each fraternity, who will be held responsible for the men going, attending and coming from the place of meeting, and who shall report departure, hour of adjournment, and return to the Professor in charge.

(12) Any student absenting himself from the Dormitory without complying with the above regulations will be suspended from the institution.

INSPECTION AND BELLS.

(1) The time at the Dormitory will be regulated by the shop whistle.

(2) The rising bell will ring in the hall at 6:15 a.m., daily, except on Sunday.

(3) Rooms must be in order, beds made up, floors swept, and students dressed at 6:40 a.m., when the inspection bell rings.

(4) The bell for breakfast will ring at 6:45 a.m., except on Sunday, when the rising, inspection and breakfast bells will ring one hour later.

(5) At 7 p.m. the bell for call to quarters will ring. Then all students must go to their rooms for study.

(6) Five minutes after call to quarters there will be an inspection, after which no student will be allowed to visit without special permission from Professor in charge. Visiting will be allowed on Friday and Saturday nights, after the usual inspection.

(7) Orderlies will be held responsible for any undue noise or disorder in rooms during study hours.

(8) At 10:15 p.m. the bell for retiring will ring, and all lights must be out and students in bed at the second bell, which will ring at 10:30.

(9) The general weekly inspection will be held every Saturday at 9 a.m., at which all students not on duty are required to be present.

MISCELLANEOUS.

(1) Students found with playing cards in their possession or in their rooms, will be suspended from the school.

(2) Any student found with intoxicating liquors in his possession will be suspended from the school. In case such liquors are found in any room in the Dormitory, the Orderly of the room will be held responsible.

(3) Students found with fire-arms in their possession will be suspended from the school.

(4) Fire-arms should be deposited with the Professor in charge.

(5) Students will not be allowed to use bathroom after call to quarters, except on Fridays and Saturdays.

(6) Rooms must be kept in order by students, room-mates taking alternate weeks in performance of this duty. The stu-

dent whose week it is to keep the room in order shall be known as Orderly, and shall have his name posted on the door as such.

(7) No student will be excused from his duties on account of sickness unless his name is reported on the sick list by the division inspector to the Professor in charge, who will summon a physician. A fee of $1 is charged for each visit of the physician. In case a student is taken sick during the day he shall report immediately to the President, or in his absence, to the Professor in charge.

(8) Students must patronize the laundry.

(9) Any disorder in the mess-halls will be punished by expulsion from the Dormitory.

ABSENCES.

(A) Absences of all students will be mailed to parents weekly.

(B) Students attending athletic duties, or others, for which they were specially detailed by the Faculty, will not be held accountable for absences resulting therefrom.

(C) Absences resulting from sickness, attending conventions, being called home by parents, or any cause other than that which is specially provided for by the Faculty, will not be excused.

(D) Students' absences from any subject will deduct from their term standing in such subject as follows for each absence:

(1) For recitations held five hours per week, one and a half.

(2) For recitations held four hours per week, two.

(3) For recitations held three hours per week, two and a half.

(4) For recitations held two hours per week, four.

(5) For absence from shop, two and a half, time to be made up.

(6) For absence from mill, two and a half, time to be made up.

(7) For absence from drawing, two and a half, time to be made up.

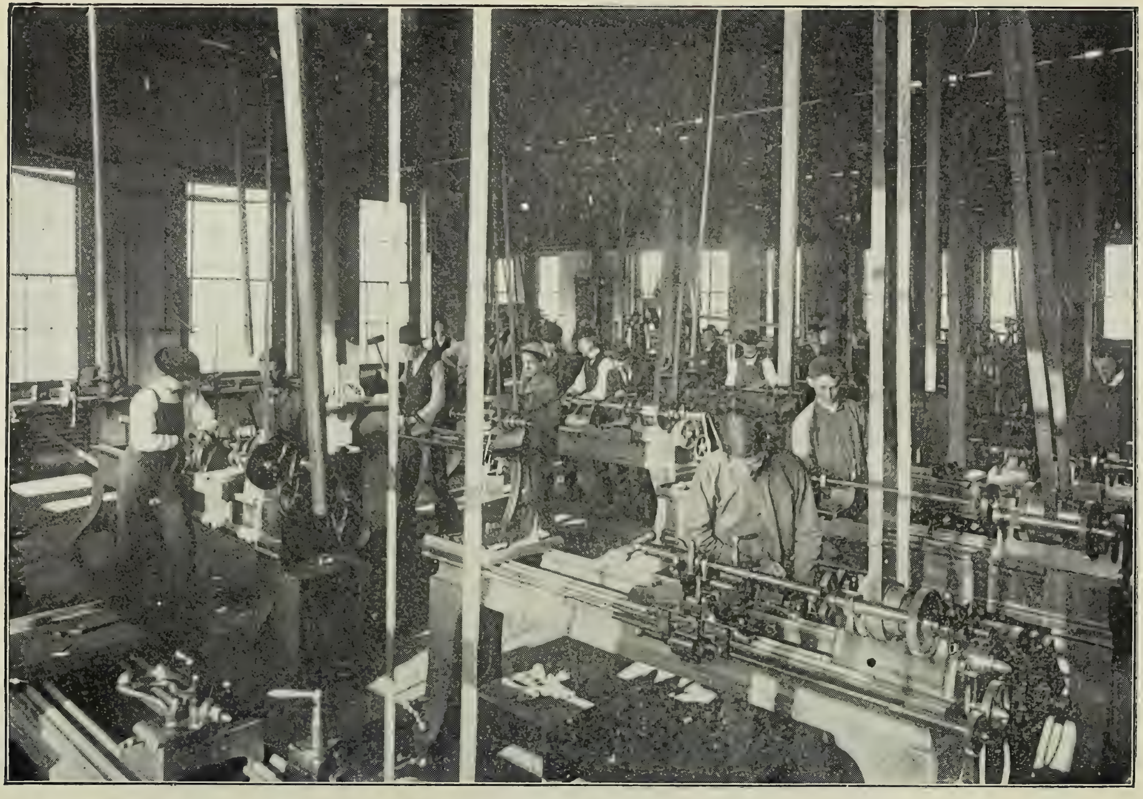
(8) For absence from designing, three.

(9) For absence from laboratory, three.

(10) For absence from gymnasium, two and a half, time to be made up in shop or mill the following week.

(11) For absence from chapel, three from general term standing.

(12) Each tardy in any subject will deduct one from the term standing in that subject.



THE MACHINE SHOP.

(E) In case a student is tardy by having been detained by a professor, a certificate to such effect from the professor who detains the student will excuse the student when presented to the professor who charges the tardy.

(F) The offence of being sent from the room, or any other misconduct, will be designated as "First Offense." On "Second Offence" of like nature, parents will be notified that the "Third Offence" will result in being dropped from the rolls for the year. The third offence will receive the penalty stated.

(G) Any flagrant misconduct will be dealt with by the Faculty as usual.

SPECIMEN EXAMINATIONS FOR ENTRANCE.

Sub-Apprentice Class and Special Textile Course, Pages 55 and 84.

FALL ENTRANCE—Arithmetic.

1. How many acres in 1 mile of road 3 rods wide?
2. Change $\frac{5}{11\frac{1}{2}}$ to a fraction whose denominator is 46.
3. A. is 1760 yards behind B. and they are going in the same direction. If A.'s rate is to B.'s as $1\frac{6}{7} : \frac{9}{21}$, how far must each travel before A. overtakes B.?
4. From 5.062 take $2.1\frac{1}{4}$ and express the result in a common fraction in hundredths.
5. A cubical cistern holds 1331 cubic yards; how deep is it?
6. Two cogged wheels, of which one has 16 and the other 17 cogs, work in each other. If the latter turns 80 times in $\frac{3}{4}$ of a minute, how often does the former turn in 8 seconds?

APPRENTICE CLASS.

FALL ENTRANCE—Algebra.

1. Add $\frac{1}{a-2x}, \frac{1}{a+2x}, \frac{2a}{a^2-4x^2}, \frac{a^4+16x^4}{4a^3}$.
2. The arithmetic mean of two numbers exceeds the geometric by 13, and the geometric exceeds the harmonic by 12. Find the numbers.

3. Simplify $\frac{a^{\frac{1}{2}}b^{\frac{1}{2}}}{c^{\frac{1}{6}}} \div \left\{ \frac{c^{\frac{1}{2}}}{a^{\frac{1}{3}}b^{\frac{1}{3}}} \times \frac{a^{-\frac{6}{6}}c^{-\frac{2}{3}}}{b^{\frac{5}{6}}} \right\}$

4. Solve $x - \frac{1}{y} = y - \frac{1}{x} = \frac{3}{2}$

5. Give the total number of combinations of *n* things taken *r* at a time, and demonstrate the principle.

6. Expand $(1-4x)^{-\frac{3}{2}}$ to four terms and show that the *r*th term may be written $\frac{|\underline{2r+1}}{(|\underline{r})^2}$

APPRENTICE CLASS.

FALL ENTRANCE—Geometry.

1. Demonstrate: Any two similar polygons are to each other as the squares of their homologous sides.
2. Find the value of each interior angle and the angle intercepted by two adjacent sides in a regular decagon.
3. Construct an isosceles triangle on the same base as a given triangle and equivalent to it.
4. There is a cylinder 6 inches in diameter having an altitude of one foot. The cylinder is partially filled with water, and a ball containing 30 cubic inches is dropped in, causing the water to rise to the top. What was the height of water in the cylinder at first?
5. Demonstrate: The sum of the face angles of any convex polyhedral angle is less than four right angles.
6. A cube is surmounted by a right cone whose base is inscribed in the upper base of the cube. The altitude of each solid is 12 inches. Find the volume of both and the amount of exposed surface.

APPRENTICE CLASS.

FALL ENTRANCE.

(English Grammar.)

I. Name and define the parts of speech. What parts of speech are inflected, and what name is given to the inflexion in each instance?

II. Into what classes are nouns divided? Mention four ways of forming the plural of nouns. Three ways of distinguishing their gender by their form. Inflect *duke, Norman, son-in-law, woman-servant.*

III. Name with examples five classes of pronouns. Inflect the Personal Pronouns and *who.* How do the Relatives differ in use?

IV. Give five noun constructions requiring the Nominative case; five requiring the Objective Case. Parse the nouns and pronouns in: But me no buts. He waited a year; then declared himself the murderer. The day being foggy, the hill seen through the mist seemed a mountain.

V. Parse the adjectives in:

> "And his droop'd head sinks gradually low,
> And through his side the last drops, ebbing slow
> From the red gash, fall heavy, one by one,
> Like the first of a thunder shower."

VI. What do adverbs modify? Write an illustration of each use. Inflect *well, ill, much, heavy.* Name with examples the two general classes of conjunctions.

VII. Define the terms: Transitive Verb, Intransitive Verb, Auxiliary Verb, Impersonal Verb, Passive Voice. Write the Indicative Mode of *shake;* the Subjunctive of *be.*

VIII. What are participles and infinitives? Parse the participles and infinitives in: Desiring to succeed makes it possible for us to succeed, though the noblest desire to work can often do nothing but wait; still, fearing nothing let us face the future, remembering that to dare will be to do,—God willing.

IX. What is a phrase, a clause, a sentence? As what parts of speech may a phrase be used? Use *where the battle was fought* as a noun, as an adjective, as an adverb.

X. How are sentences classified according to form, or structure; according to use? Define each class. Analyze:

> "Sweet are the uses of adversity.
> Which like the toad, ugly and venomous,
> Wears yet a precious jewel in his head."

APPRENTICE CLASS.

FALL ENTRANCE.

(English and American Classics.

I. Give a biographical sketch of Edgar Allen Poe; of Sidney Lanier.

II. Tell the story of "The Raven," and interpret its significance.

III. Tell in your own words the story of "The Lady of the Lake."

IV. Mention the leading characters of "Silas Marner," and give a critical estimate of each character.

V. Tell in outline the story of "Rip Van Winkle"; how does it exemplify Irving's genius?

VI. Give a synopsis of the "Legend of Sleepy Hollow."

REGISTER OF GRADUATES.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
George G. Crawford Wilkinson.	'90	M.E.	Manager, National Department National Tube Company, comprising National Tube Works, National Rolling Mills, Monongahela Furnaces, Monongahela Steel Works, Boston Iron and Steel Works, Republic Iron Works, National Galvanizing Works, McKeesport, Pa., U. S. Steel Corporation.
Henry L. Smith... Rockdale.	'90	M.E.	Member of H. L. & M. D. Smith, Manufacturers, Dalton, Ga.
Percy C. Brooks... DeKalb.	'91	M.E.	Secretary and Treasurer Fairbanks-Morse Manufacturing Co., Secretary Eclipse Wind Mill Co., Secretary Eclipse Engine Co., Secretary Eclipse Machine Moulding Co., Secretary Williams Engine & Clutch Works, Beloit, Wis.
Julius L. DeGive.. Fulton.	'91	M.E.	Electrician and Constructing Engineer Grand Opera House, Atlanta, Ga.
W. H. Glenn...... Fulton.	'91	M.E.	Superintendent Maintenance of Way, Georgia Ry. & Electric Co., Atlanta, Ga.
J. D. Goldsmith... Fulton.	'91	M.E.	With Southern Railway Shops, Atlanta, Ga.
J. H. Jones........ Fulton.	'91	M.E.	Assistant Engineer, New Soddy Coal Co., Soddy, Tenn.
J. B. McCrary..... Coweta.	'91	M.E.	Engineer - Contractor, Water, Lights, Sewerage, English - American Bldg., Atlanta, Ga.
J. S. Moore........ Thomas.	'92	M.E.	Mechanical Engineer, English - American Building, Atlanta, Ga.
C. M. Pritchett.... Bartow.	'91	M.E.	Engineer U. S. Geological Survey, Hydrographic Div'n, Washington, D. C.
C. E. Ard......... Stewart.	'92	M.E.	Professor of Physics and Electrical Engineering, Agricultural College, Miss-
J. W. Bridge...... Fulton.	'92	M.E.	Division Superintendent Pittsburg, McKeesport & Connellsville Railway Co., Uniontown, Pa.
A. R. Colcord..... Dodge.	'92	M.E.	President Colcord - Williams Lumber Co., Atlanta, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
E. W. Collins..... Cobb.	'92	M.E.	Superintendent American Chemical & Mining Co., Atlanta, Ga.
E. H. Davis....... Putnam.	'92	M.E.	Superintendent Towaliga Falls Power Co., Griffin, Ga.
C. E. Fairbanks... DeKalb.	'92	M.E.	Chief of Electrical Equipment and Switch-board Dep't New York & New Jersey Telephone Co., Newark, N. J.
George Freeman... Chatham.	'92	M.E.	Deceased.
Wm. A. Hansell, Jr. Fulton.	'92	M.E.	Vice-President American Chemical & Mining Co., Atlanta, Ga.
N. B. Hudson...... Rockdale.	'92	M.E.	With R. D. Cole Mfg. Co., Newnan, Ga.
Mark W. Johnson, Jr Fulton.	'92	M.E.	Chief Draughtsman, Furnace Division, Tenn. Coal, Iron & Railway Co., Ensley, Ala.
C. B. Little..... Putnam.	'92	M.E.	Asst. Supt. and Mechanical Engineer Brownell Co., Engine and Boiler Manufacturers, Dayton, Ohio.
M. M. Pearson..... Tattnall.	'92	M.E.	Draughtsman, General Electric Co., Schenectady, N. Y.
J. G. Rossman.... Greene.	'92	M.E.	President B-R Electric Co., Atlanta, Ga., and President Ponce de Leon Amusement Co., Atlanta, Ga.
T. F. Scully....... Fulton.	'92	M.E.	Deceased.
J. B. Sherard...... Jackson.	'92	M.E.	With Newport News Ship-Building & Dry Dock Co., Newport News, Va.
W. P. Walthal..... Campbell.	'92	M.E.	With Forest and George Adair, Real Estate Agents, Atlanta, Ga.
Z. Whitehurst..... Wilkinson.	'92	M.E.	Pricipal Dublin Institute, Dublin, Ga.
F. E. Whitney..... Richmond.	'92	M.E.	Member of S. M. Whitney Co., Cotton Factors, Augusta, Ga.
A. D. Black....... Floyd.	'93	M.E.	Asst. Engineer, Dist. Engineer Corps, Dist. of Columbia, Washington, D. C.
E. E. Davis........ Chatham.	'93	M.E.	Mechanical and Electrial Engineer and Senior Member Davis-Forest Machine Works, Savannah, Ga.

IN THE DYEING LABORATORY.

REGISTER OF GRADUATES—Continued.

Name and County from which appointed.	Class.	Degree B. S. in	Occupation.
S. F. Jeter........ Fulton.	'93	M.E.	Mech. Engineer Mining Co., Cartersville, Ga.
Joe W. Little...... Fulton.	'93	M.E.	President of Carter & Gillespie Electric Co., Atlanta, Ga.
H. L. Long, Jr .... Lee.	'93	M.E	Doctor of Medicine, Leesburg, Ga.
M. W. McRae ..... Bibb.	'93	M.E.	Contractor, Colonia, City of Mexico, Mexico.
H. H. Miles .... Fulton.	'93	M.E.	Mngr. Nashville, Tenn., Branch of Miles & Bradt Co., Contractors.
A. R. Murray...... Cobb.	'93	M.E.	Designer for Lodge & Shipley Machine Tool Co., Cincinnati, O.
W. J. Nalley....... Douglas.	'93	M.E.	Mechanical and Civil Engineer, Austell Building, Atlanta, Ga.
H. G. Nowell...... Walton.	'93	M.E.	Attorney at Law, Monroe, Ga.
H. T. Phillips ..... Fulton.	'93	M.E.	Treasurer of Phillips & Crew Co., Atlanta, Ga.
W. O. Connor ..... Floyd.	'94	M.E.	Professor of Mathematics in Iowa School for Deaf, Council Bluffs, Iowa.
D. E. Duggan ..... Hancock.	'94	M.E.	General Manager of the Cochran Cotton Mill, Cochran, Ga.
G. F. Forest....... Thomas.	'94	M.E.	Mech. Engineer & Member of Davis Forest Machine Works, Savannah, Ga.
E. A. Green....... Clay.	'94	M.E.	Lieutenant U. S. Marine Corps, Navy Yard, Washington, D. C.
T. Holmes......... McIntosh.	'94	M.E.	Manager, Moses & Holmes, lumbermen, Booth, Ala.
W. W. Hunter..... Wilkes.	'94	M.E.	Assistant Engineer to C. P. Barnett, Clifton Forge, Va.
E. B. Merry...... Columbia.	'94	M.E.	Senior member of Merry Bros. Brick Co., Augusta office, Augusta, Ga.
P. Ogletree........ Meriwether.	'94	M.E.	Peach Growing, Zenith, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S in	Occupation.
E. R. Whitney.... Richmond.	'94	M.E.	Mechanical Engineer with the General Electric Co., Lynn, Mass.
S. W. Allen .... Elbert.	'95	M.E.	Superintendent Elberton Light and Power Plant, Elberton, Ga.
J. A. Almond ..... Elbert.	'95	M.E.	Superintendent The Pearl Cotton Mills, Beverly, Ga.
H. W. Clark....... Richmond.	'95	M.E.	Manager Alabama Cotton Mills, Speigners, Ala.
J. M. Goldsmith, Jr. Fulton.	'95	M.E.	Assistant Engineer Georgia Electric Light & Power Co., Atlanta, Ga.
G. H. Harrison.... DeKalb.	'95	M.E.	Rector St. George's Church, Griffin, Ga.
Wm. Jessup ...... Fulton.	'95	M.E.	Draughtsman Geo. B. Sickels Co., Marble Works, Tate, Ga.
J. F. Lovette...... Fulton.	'95	M.E.	With Central of Georgia Railway Co., Atlanta, Ga.
C. W. McCall . .. Chatham.	'95	M.E.	Cashier for Hunter, Pearce & Battey, Cotton and Naval Stores, Savannah, Ga.
W. B. Nunnally ... Fulton.	'95	M.E.	Manager of Manufacturing Department of Nunnally Bros., Mfgs. of Pants and Overalls, Atlanta, Ga.
T. F. Oetjen....... Richmond.	'95	M.E.	Constructing Engineer for Colonia "La Flora," Paradero de Camarones, Cuba.
J. E. Smith .... Fulton.	'95	M.E.	Superintendent John M. Smith Carriage Factory, Atlanta, Ga.
R. N. Towers ..... Floyd.	'95	M.E.	Assistant Mechanical Engineer American Cotton Oil Co., N. Y.
G. Z. Echols ...... DeKalb.	'96	M.E.	Paymaster U. S. Army, Havana, Cuba.
J. F. Gibbons ..... Bartow.	'96	M.E.	Ass't. Supt. Pittsburgh Reduction Co.'s Aluminum Works, East St. Louis, Ill.
H. R. Hart......... Fulton.	'96	M.E.	Deceased.
Chas. W. Hill..... Floyd.	'96	M.E.	With Hardie-Tynes Mfg. Co., Birmingham, Ala.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
H. C. Reynolds ... Hancock.	'96	M.E.	Electrical Engineer with Carter & Gillespie, Atlanta, Ga.
Thos. P. Thompson. Fulton.	'96	M.E.	Consulting Engineer Neff & Thompson, Architects and Engineers, Norfolk, Va.
R. B. Tufts........ Glynn.	'96	M.E.	Civil Engineer, Prudential Building, Atlanta, Ga.
A. B. Whitney .... Richmond.	'96	M.E.	Deceased.
J. T. Wikle........ Fulton.	'96	M.E.	Assistant Superintendent Fulton Bag and Cotton Mills, Atlanta, Ga.
B. N. Wilson ...... Fulton.	'96	M.E.	Professor Mechanical Engineering and Superintendent of Mechanic Arts, Arkansas University, Fayetteville, Ark.
R. V. Corput...... DeKalb.	'97	M.E.	Lieutenant, Artillery Corps U. S. Army.
R. M. Crumley.... Fulton.	'97	M.E.	General Manager of Mill Supply Department Beck & Gregg, Atlanta, Ga.
F. C. Furlow ...... DeKalb.	'97	M.E.	Superintendent Otis Elevator Company, Philadelphia, Pa.
E. F. Huff......... Bibb.	'97	M.E.	Auditor Armour & Co., Chicago, Ill., Headquarters St. Louis, Mo.
W. D. Nash .... Fulton.	'97	M.E.	District Engineer and Purchasing Agent Atlanta Division of Southern Cotton Oil Co., Atlanta, Ga.
J. F. Ogletree, Jr.. Meriwether.	'97	M.E.	Farming, Odessadale, Ga.
A. L. Reynolds .... Hancock.	'97	M.E.	Agent Georgia Railroad Co., Merchant and Fruit Grower, Mayfield, Ga.
E. L. Wright ..... Dougherty.	'97	M.E.	Secretary and Treasurer Albany Brick Co., Albany, Ga.
S. A. Bulloch...... Thomas.	'98	E.E.	With Foy Hardware Co., Eufaula, Ala.
J. C. Crawford .... Whitfield.	'98	E.E.	Deceased.
W. B. Everett..... Polk.	'98	E.E.	Saw Milling and Merchandising, Rockmart, Ga, R. F. D. No. 2.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
J. C. Garlington... Gordon.	'98	M.E.	Mechanical Engineer, Reeves Station, Ga.
J. O. Hall......... Warren.	'98	E.E.	Superintendent sawmill, Belle Air, Ga.
R. H. Hart .... DeKalb.	'99	E.E.	Draughtsman and Inspector for So. Bell Telephone & Telegraph Co., Atlanta, Ga.
C. D. Honiker .... Bibb.	'98	M.E.	With Fulton Bag and Cotton Mills, Atlanta, Ga.
H. H. Peek .... Rockdale.	'98	M.E.	Sales Manager and Engineer for Lookout Boiler & Manufacturing Company, Chattanooga, Tenn.
B. W. Seawell...... Fulton.	'98	M.E.	Assistant Engineer, The Rhode Island Company, Providence, R. I.
L. R. Camp......... Coweta.	'99	M.E.	Superintendent Southern Cotton Oil Company, Sumter, S. C. With Contracting Department, Georgia.
T. M. Gibbes ...... Cobb.	'99	E.E.	With Georgia Railway & Electric Co., Atlanta, Ga.
J. M. Harby....... Sumter, S. C.	'99	M.E.	Member Southern Engineering Co., Consulting and Constructing Engineers, Sumter, S C.
P. Jackson........ Monroe.	'99	M.E.	Draughtsman and Designing and Erecting Engineer, J. S. Schofield's Sons & Co. new shops, Macon, Ga.
W. Leigh .... Coweta.	'99	M.E.	Structural Engineer with Brown Hoisting Machine Co., Cleveland, O.
J. H. Lowe........ Fulton.	'99	M.E.	Member of Wm. Bensel Co., Builders and Contractors, Atlanta, Ga.
P. Moses, Jr....... Sumter, S. C.	'99	M.E.	Gen. M'gr and Sec. Clarendon Cotton Mills, President and Secretary Sumter Insurance Co., Member of Southern Engineering Co., Consulting and Constructing Engineers, Sumter, S. C.
C. D. Terrell	'99	E.E.	Vice-President Atlanta Plow Co., Atlanta, Ga.
F. C. Turner....... Troup.	'99	M.E.	Junior Professor of Drawing, Georgia School of Technology, Atlanta, Ga.
R. J. Binford...... Decatur.	'00	E.E.	Electrical Engineer, D. C. Department, General Electric Co., Schenectady, N. Y.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. In	Occupation.
H. L. Freeman.... Richmond.	'00	E.E.	Instructor in Machine Design, Cornell University, Ithica, N. Y.
C. S. Jones .... Chatham	'00	M.E.	Mechanical Engineer, Lackawanna Steel Co., Buffalo, N. Y.
P. R. Lamar....... Richmond.	'00	M.E.	Chemist for Southern Cotton Oil Co., Augusta, Ga.
S. L. Rich......... Fulton.	'00	E.E.	Purchasing Agent B-R Electric Co., Atlanta, Ga.
A. Skalowski...... Richmond.	'00	E.E.	General Superintendent Augusta Telephone and Electric Co., Augusta, Ga.
E. P. Williams.... White.	'00	M.E.	Draughtsman, Lackawanna Iron & Steel Co., Buffalo, N. Y.
C. S. Wright ...... Gordon.	'00	M.E.	Asst. Prof. Engineering and Mechanical Arts in charge of Machine Shops, Clemson College, Clemson, S. C.
W. R. Wynne..... Floyd.	'01	E.E.	Chief Draughtsman for Southern Bell Telephone & Telegraph Co., Atlanta, Ga.
J. P. Benjamin.... Fulton.	'01	M.E.	Inspector South-Easterern Tariff Association, Atlanta, Ga.
E. W. Camp....... Coweta.	'01	T.E.	Instructor in Carding and Spinning, Georgia School of Technology, Atlanta, Ga.
D. O. Dougherty,Jr. Fulton.	'01	E.E.	Student Johns Hopkins University Medical School, Baltimore, Md.
E. Gay............. Fulton.	'01	M.E.	Inspector Manufacturing Risks and Special Hazards, S.-E. Tariff Association, Atlanta, Ga.
W. J. Holman..... Tennessee.	'01	E.E.	Mining Engineer and General Foreman Machine Shop, Georgia Iron & Coal Co., Coal City, Ala.
B. W. Holtzclaw .. Houston.	'01	M.E.	Draughtsman, Scofield Iron Works, Macon, Ga.
W. D. Hughes..... Wilkinson.	'01	T.E.	Overseer of Carding, Meridian Cotton Mills, Meridian, Miss.
W. Langston...... Fulton.	'01	T.E.	In charge of Roseland Manufacturing Co., Atlanta, Ga.
A. S. Mead........ DeKalb.	'01	T.E.	Student in California.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed	Class.	Degree B. S. in	Occupation.
G. J. Merritt...... Bibb.	'01	M.E.	Mechanical Engineer, Dayton Coal & Iron Co., Dayton, Tenn.
J. W. Moore........ Fulton.	'01	M.E.	Assistant District Engineer, Southern Cotton Oil Co., Atlanta, Ga.
W. Newsome...... Troup.	'01	M.E.	Salesman R. D. Cole Manufacturing Co., Newnan, Ga.
W. P. Sullivan .... Chatham.	'01	M.E.	Resident Engineer, Schloss-Sheffield Steel & Iron Co., Blossburg, Ala.
L. C. Swords ...... Morgan.	'01	T.E.	Merchandising, Swords, Ga.
J. F. Towers ...... Floyd.	'01	M.E.	Assistant Master Mechanic, Georgia Iron & Coal Co., Rising Fawn, Ga.
J. S. Waterman ... Bibb.	'01	M.E.	Draughtsman, Mechanical Engineer for Columbus Iron Works Co., Columbus, Ga.
J. H. Williams.... Henry.	'01	M.E.	Engineering Draughtsman, Newport News Ship Building & Dry Dock Co.
J. T. Anthony..... Chatham.	'02	T.E.	Overseer Carding and Spinning, the Strickland Cotton Mills, Valdosta, Ga.
E. H. Bacon....... Dodge.	'02	T.E.	Assistant Manager Piedmont Cotton Mills, East Point, Ga.
M. R. Berry....... Fulton.	'02	M.E.	Asst. Supt. Construction, Pittsburg, McKeesport & Connellsville Ry. Co., Connellsville, Penn.
I. Hardeman...... Bibb.	'02	T.E.	With Buffalo Forge Co., Buffalo, N. Y.
R. L. Hicks......... Bartow.	'02	M.E.	With Engineering Co., Rockmart, Ga.
M. T. Hochstrasser. Fulton.	'02	M.E.	Engineer with Miles & Bradt, Atlanta, Ga.
Folger Johnson.... Bibb.	'02	T.E.	Student Columbia University, New York, N. Y.
A. A. Jones........ Chattanooga.	'02	T.E.	With McFadden Cotton Co., Huntsville, Ala.
C. H. Kicklighter . Fulton.	'02	M.E.	Asst. Prof. of Mathematics and Physics, Georgia School of Technology, Atlanta, Ga.

IN THE ELECTRICAL LABORATORY.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
E. W. Klein Fulton.	'02	M.E.	In office of Mechanical Supt., Minneapolis, St. Paul & Sault Ste. Marie Ry., Minneapolis Minn.
McD. Lawrence Cobb.	'02	C.E.	Asst. Engineer L. & N. R. R. Co., Ala.
P. K. McKenney Lee.	'02	T.E.	Eagle and Phœnix Mills, Columbus, Ga.
R. G. Merry Columbia.	'02	M.E.	Asst. District Engineer, Southern Cotton Oil Co., Augusta District, Augusta, Ga.
A. H. Morton Penn.	'02	M.E.	Asst. Engineer L. & N. R. R. Co., Birmingham, Ala.
P. H. Norcross Fulton.	'02	T.E.	Structural Draughtsman with The Carolina Steel Bridge & Construction Co., Burlington, N. C.
J. H. Paulsen Chatham.	'02	M.E.	Asst. Engineer Propeller Tow Boat Co., Savannah, Ga.
J. Prioleau Fulton.	'02	T.E.	With Atlanta Woolen Mills, Atlanta, Ga.
C. W. Rainey Cobb.	'02	T.E.	With Union Ginning Co., Atlanta, Ga.
M. G. Smith Fulton.	'02	M.E.	With J. E. Sirrine, Mill Architect and Engineer, Greenville, S. C.
H. L. Strickland Gwinnett.	'02	M.E.	With Babcock & Wilcox Boiler Co., Lima, Peru.
T. M. Thompson Jasper.	'02	M.E.	Testing Laboratory of Fairbanks, Morse & Co., Beloit, Wis.
D. D. Towers Cobb.	'02	T.E.	Asst. Superintendent Merrimack Mfg. Co. (cotton), Huntsville, Ala.
J. G. West, Jr. Fulton.	'02	T.E.	With National Tube Co., McKeesport, Penn.
H. B. Wey Fulton.	'02	M.E.	With Bridgeport Brass Co., Bridgeport, Conn.
L. G. Yankey Dougherty.	'02	T.E.	District Chemist, Southern Cotton Oil Co., Savannah, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
H. W. Atkinson... Fulton.	'03	T.E.	With E. A. Posselt, Consulting Expert in Textile Mnf'g, Philadelphia, Penn.
H. O. Ball .... Butts.	'03	T.E.	With Pepperton Cotton Mills, Jackson, Ga.
F. G. Bell .... Chatham.	'03	T.E.	Supt. Opelika Cotton Mills, Opelika, Ala.
P. E. Cannon...... Franklin.	'03	T.E.	With Monticello Cotton Oil Co., Monticello, Ga.
B. W. Cochran .... Campbell.	'03	E.E.	Assistant Marine Test, General Electric Co., Schenectady, N. Y.
J. E. Cook .... Chattahoochee.	'03	E.E.	Engineer, Atlanta, Ga.
A. O. Dayton...... Florida.	'03	E.E.	With Ga. Railway & Electric Co. Meter Department, Atlanta, Ga.
H. O. Evans....... Texas.	'03	E.E.	Engineer, Atlanta, Ga.
W. M. Fambrough. Thomas.	'03	E.E.	Designing Eng. and Supt. of Construc'n with J. B. McCrary, Eng. & Con. for Water, Light & Sew'age, Atlanta, Ga.
M. L. Freeman .... Richmond.	'03	T.E.	Instructor in Drawing Agricul'l & Mechanical College of Mississippi.
Felder Furlow .... Fulton.	'03	C.E.	Assistant Engineer, Southern Railway, Birmingham, Ala.
G. W. Hamilton... Whitfield.	'03	T.E.	Engineer, with Crown Cotton Mills, Dalton, Ga.
J. D. Hodnett..... Massachusetts.	'03	T.E	Construction Engineer for Water Works System, Gulport, Miss.
A. R. Howard. ... DeKalb.	'03	T.E.	With Gaffney Manufacturing Co., Cotton Goods, Gaffney, S. C.
C. J. Kamper...... Fulton.	'03	C.E.	Mining Engineer for Big Brusby Coal & Coke Co., Petros, Tenn.
A. D. Kennedy.... Fulton.	'03	E.E.	Inspector and Draughtsman for Walton Electrical Manufacturing Co., Atlanta, Ga.
R. H. Lowndes.... S. C.	'03	M.E.	Adjunct Prof. Drawing, Ga. School of Technology, Atlanta, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
B. F. Markert..... Pulaski.	'03	M.E.	With Gude & Walker, Engineers, Atlanta, Ga.
E. C. Patterson ... Fulton.	'03	M.E.	Estimating Engineer for Walsh & Weidener, Boiler Makers, Chattanooga, Tenn.
P. M. Peteet ...... Morgan.	'03	T.E.	With Cedartown Cotton & Export Co., Cedartown, Ga.
W. S. Rankin ...... Chatham.	'03	M.E.	In charge of Power House of Southern Cotton Oil Co., Savannah, Ga.
J. E. Roberts...... Tennessee.	'03	E.C.	Eng. Chemist, Memphis, Tenn.
E. A. J. Seddon... Fulton.	'03	E.E.	Chief Draughtsman Atlanta Telephone & Telegraph Co., Atlanta, Ga.
F. W. Shackleford. Muscogee.	'03	E.E.	Testing Department General Electric Co., Schenectady, N. Y.
L. M. Solomon .... Bibb.	'03	T.E.	Textile Engineer, Macon, Ga.
S. L. Snowdon..... Bibb.	'03	M.E.	Engineering work on Gulf of Mexico, Miss.
F. C. Swain........ Gordon.	'03	T.E.	Textile Engineer, Reeves Station, Ga.
J. G. Swanson..... Alabama.	'03	T.E.	Instructor Textile Department, Georgia School of Technology.
J. L. Thrash....... Meriwether.	'03	E.E.	Student Ga. School of Technology, Atlanta, Ga.
R. B. VanWormer. Fulton.	'03	M.E.	With American Bridge Co., Toledo, Ohio.
C. F. Wagner...... Butts.	'03	M.E.	Second Assistant Superintendent of Steam for the Carnegie Steel Co., Homestead, Penn.
J. A. Whitner ..... Fulton.	'03	M.E.	Inspector South-Eastern Tariff Association, Atlanta, Ga.
A. C. Wilson...... Fulton.	'03	E.E.	With Geogia Railway & Electric Co., Engineering Department, Atlanta, Ga.
Paul Wright ...... Spalding.	'03	M.E.	Draughtsman for Atlanta Terminal Co., Atlanta, Ga.

REGISTER OF GRADUATES—Continued.

Name, and County from which appointed.	Class.	Degree B. S. in	Occupation.
C. L. Ruse .... Fulton,	'03	M.E.	With Frank & Dubois, Inspector of Mill Risks.
Guy Garrard ...... Muscogee.	'03	T.E.	Operative, Eagle & Phœnix Cotton Mills, Columbus, Ga.
C. M. Binford ..... Decatur.	'03	E.E.	Roadway Dept. Georgia Railway & Electric Co., Atlanta, Ga.

UNIVERSITY OF GEORGIA.

The complete organization of the University of Georgia is as follows:

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2. The Georgia State College of Agriculture and the Mechanic Arts (the College of Science); established 1872; offering the Degree of Bachelor of Science; having the following schools: Civil Engineering, Electrical Engineering, Agriculture (full course and short winter course), Chemistry, Physics, Biology, Mathematics, Rhetoric and English Literature, English and German, Romance Languages, Latin, History and Political Science, Metaphysics and Ethics, Military Science, Geology.
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For catalogue, apply to

E. S. Avis, President,
Dahlonega, Ga.

III. THE MEDICAL COLLEGE OF GEORGIA, AUGUSTA, GA.

Established 1829. For catalogue, apply to

Eugene Foster, M.D., Dean of Faculty,
Augusta, Ga.

IV. GEORGIA SCHOOL OF TECHNOLOGY, ATLANTA, GA.

Established 1888; offering the Degrees of Bachelor of Science in Mechanical Engineering, in Electrical Engineering, in Civil Engineering, in Textile Engineering, and in Engineering Chemistry, and having the following departments: Mathematics, Engineering Chemistry, Mechanical Engineering, English, Physics, Electrical Engineering, Civil Engineering and Experimental Engineering.

For catalogue, apply to

Lyman Hall, President,
Atlanta, Ga.

V. GEORGIA NORMAL AND INDUSTRIAL COLLEGE (FOR GIRLS), MILLEDGEVILLE, GA.

Established 1889; offering the following Diplomas: Normal Diploma, Collegiate Diploma, and the following Certificates of Proficiency: In Bookkeeping, Stenography, Dressmaking, Freehand Drawing; organized in the following departments: Normal Department, Normal and Industrial Art, Collegiate Department, Physical Training, Industrial Department, Department of Domestic Science, Department of Music and Fine Art. For catalogue, apply to

J. Harris Chappell, President, Milledgeville, Ga.

VI. STATE NORMAL SCHOOL, ATHENS, GA. (COEDUCATIONAL).

Established 1891; having the following courses: Common School Course (one year), Graduate Course (three years); including the following schools: Literature, English, Elementary Science, Mathematics, History and Geography, Geography, Latin, Art, Education and Manual Training, Penmanship, Psychology, Pedagogy, Domestic Science.

For catalogue, apply to E. C. Branson, President,
Athens, Ga.

VII. GEORGIA INDUSTRIAL COLLEGE FOR COLORED YOUTHS, AT COLLEGE, NEAR SAVANNAH, GA.

Established 1890, and organized in the following schools: English, Pedagogy, Mathematics, Science, Agriculture, Manual Training (including Mechanical Drawing, Woodworking and Ironworking); Department of Trades (Carpentry, Blacksmithing, Masonry, Painting, Tailoring, Shoemaking, Sewing). For catalogue, apply to

R. R. Wright, President, College, Ga.

Summary of Students in the University Organization.

(*a*) OF COLLEGE GRADE:

In Franklin College	158
In State College of Agriculture	152
In Graduate Schools	2
In North Georgia Agricultural College	186
In School of Technology (including Sub-App.)	511
In Normal and Industrial College for Girls	346
In State Normal School	459
Industrial College for Colored Youths	25
Total	1839

(*b*) IN PREPARATORY DEPARTMENTS:

In Industrial College for Colored Youths	Normals 101 Prep. 199 Primary 106	406
In Normal and Industrial College		——
In State Normal School		92
Total		

(*c*) IN PROFESSIONAL SCHOOLS:

In the Law Department	35
In the Medical Department	113

RECAPITULATION.

Total Students of College Grade	1839
Total Students Professional Schools	148
Total Students Preparatory Departments	587

UNIVERSITY OF ILLINOIS-URBANA
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